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AN EPITOME
OF
BRAITHWAITE'S RETROSPECT

OF
PRACTICAL MEDICINE AND SURGERY;

CONTAINING

A CONDENSED SUMMARY OF THE MOST IMPORTANT CASES; THEIR TREATMENT, AND ALL THE REMEDIES AND OTHER USEFUL MATTERS EMBRACED IN THE FORTY VOLUMES—THE WHOLE BEING ALPHABETICALLY CLASSIFIED, AND SUPPLIED WITH AN ADDENDA, COMPRISING A TABLE OF FRENCH WEIGHTS AND MEASURES, REDUCED TO ENGLISH STANDARD—A LIST OF INCOMPATIBLES—EXPLANATION OF THE PRINCIPAL ABBREVIATIONS OCCURRING IN PHARMACEUTICAL FORMULÆ—A VOCABULARY OF LATIN WORDS MOST FREQUENTLY USED IN PRESCRIPTIONS, AND A COPIOUS INDEX.

In Libr. Paris.

BY WALTER S. WELLS, M.D.

PART FIRST.

NEW YORK:
W. H. TINSON, PRINTER AND STEREOTYPED.
1860.

ENTERED according to Act of Congress, in the year 1860, by
WALTER S. WELLS, M.D.,
Clerk of the District Court of the United States, in and for the Southern District of
New York.

WELLS, WALTER S.

TESTIMONIALS.

NEW YORK, April 17th, 1859.

WALTER S. WELLS, M.D., has submitted to my inspection his Epitome and Index of Braithwaite's Retrospect, and I am very, very much pleased with the result of his labors. He has conferred a great favor upon the profession. Braithwaite's Retrospect has become voluminous, and of itself makes quite a library. Dr. Wells' book, not only furnishes us with a summary of the whole, but enables us to refer, without loss of time, to any special subject contained in the forty volumes.

WILLARD PARKER, M.D.,

Professor Surgery, College Physicians and Surgeons.

NEW YORK, April 16th, 1859.

TO WALTER S. WELLS, M.D.

Few periodical Journals devoted to Medical Science and its collateral branches have been so eminently distinguished by rich materials and important information, for a series of years, as Braithwaite's Retrospect of Practical Medicine and Surgery. It may well be deemed quite a library of the great modern improvements in the noble art of healing. Your attempt to concentrate the essence of this extensive work into a manageable volume will prove a bold achievement, and judging from the ample specimen which I have had before me, I cannot hesitate to say that your undertaking will be an acceptable service to all readers, and widely diffuse the most wholesome knowledge for the benefit of practitioners in general, and the cultivators of profitable and saving wisdom. Your labor deserves the patronage of the Profession.

JOHN W. FRANCIS, M.D., LL.D.

NEW YORK MEDICAL COLLEGE, April 23d, 1859.

WALTER S. WELLS, M.D.

DEAR SIR: It affords me great pleasure to offer my cordial commendation of your laborious undertaking, to present to the profession an Epitome of Braithwaite's Retrospect of Practical Medicine and Surgery.

You may feel assured that your Condensation and Tabulation of this voluminous work will be appreciated.

Yours, etc.,

R. OGDEN DOREMUS, M.D.,

Professor Chemistry, N. Y. Med. Coll.

Professor Chemistry, N. Y. Coll. Pharmacy.

NEW YORK, April 26th, 1859.

TO WALTER S. WELLS, M.D.

DEAR SIR: I think you have rendered an essential service to the Profession by your Epitome of the extensive Retrospect of Braithwaite. The alphabetical arrangement of the subjects make it more easily available to practitioners of the city and country who have but little leisure for reading. I welcome it as a valuable present to the Physician and Surgeon.

Yours truly,

VALENTINE MOTT, M.D.,

Professor Surgery, University Medical College.

PREFACE.

THE design of the author, in presenting to the Profession an Epitome of "Braithwaite's Retrospect of Practical Medicine and Surgery," is to enable the practitioner *to refer at once* to the modern treatment of all varieties of disease—to refresh his memory in cases of emergency—and to speedily acquaint himself with such specific applications as would otherwise involve considerable research to acquire from the original volumes.

A casual examination will suffice to assure the practitioner that he has been deemed competent to the formation of a correct diagnosis in any case for which he may turn to these pages in quest of remedial agents.

It would be superfluous here to urge the importance of a thorough conversance with the semeiology of diseases in general; but upon this "*sine quâ non*" has the author devoted considerable time in the preparation of this summary, avoiding repetition, and selecting such versions as to him seemed most concisely descriptive.

Reference to the part and page of the original volume of which the article is an abstract is appended, for the convenience of those who may wish to refer in detail.

This Part will be followed, as soon as practicable, by Parts Two, Three, Four and Five, consecutively, and will embody all the *practically useful portions* of the volumes of the Retrospect now extant.

Hoping this compilation may supply a necessity long experienced by the active practitioner, it is respectfully submitted.

NEW YORK, January, 1860.

SUBJECTS

TO BE EMBRACED IN THE FIVE PARTS.



ABDOMEN.	ASPHYXIA.
ABDOMINAL AFFECTIONS.	ASTHMA.
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ABSCESS.	BALDNESS.
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LITHOLIBY.	ŒSOPHAGUS.
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ADDENDA.

FRENCH WEIGHTS, ETC.	INCOMPATIBLES.
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AN EPITOME

OF

BRAITHWAITE'S RETROSPECT.

ABDOMEN.

Chloroform for painful affections of.—Vide Art. "Chloroform" (post, —). Part xxv., p. 328.

Case of Wound of.—This accident occurred to a boy between nine and ten years old, while bathing, by his falling upon a broken wash-hand basin. A wound thereby was inflicted, three inches in length, commencing a little below the umbilicus, nearly to the pubes, through which the greater part of the small intestines, transverse arch of the colon, and the omentum, immediately protruded. Mr. Blacklock states:

When I first saw him he had been lying upon the bank of the river upward of an hour, and the protruded parts, which were chiefly hanging over his left thigh, had evidently been in contact with the ground, for a considerable quantity of sand, withered grass, and other extraneous matters, adhered to them; and, from long exposure to the atmosphere, and fruitless attempts on his own part to force them back into the abdomen, they had become of a deep red color. Twenty minutes more had elapsed before a supply of warm water and a sponge could be procured, and the washing of the intestines and mesentery, which was chiefly done by allowing the water to flow over them from the sponge, also occupied a considerable time before they could be replaced. The reduction was by no means so simple and easy a process as some might suppose; for it frequently happened that patches of sand, etc., which had not previously been observed, were brought into view, as convolution after convolution of intestines was about to be replaced, and of course had to be washed off before the operation could be proceeded with. I may therefore safely say, that it was fully an hour and a half from the time that the intestines were immersed in the cold river until they were fairly returned into the abdominal cavity. The whole, however, being replaced, and the omentum spread out, so as to come as much as possible between the intestines and the external wound, the lips of the latter were immediately approximated, and secured in contact by three interrupted sutures, which were afterward supported by strips of adhesive plaster. The unfortunate boy was now conveyed to his father's house, about a mile from the place where the accident occurred; and three hours after, when reaction had fairly commenced (for, in the first instance, or at

least, from the time of my arrival, he was pale and almost pulseless, although little or no hemorrhage had taken place), twelve leeches were applied, and a grain and a half of calomel, combined with one-twelfth of a grain of opium, directed to be given every two hours. In about two weeks this patient was perfectly cured. Strict antiphlogistic measures, together with the foregoing remedies, pro re nata, comprising the treatment.

Part xxvi., p. 194.

Pendulous—Mechanical Support in Cases of.—Very often from flatulence and intestinal torpidity. Its true pathological nature we once heard pointedly indicated by a Borough obstetrician in three words—"fat, feces, flatus."

The abdominal bandage tightly applied will soon dispel all suspicions, either of pregnancy or of ovarian disease, which might previously have been entertained. The use of tonics and mild purgatives (*e. g.* aloes) at the same time is of course advisable. Dr. West often employs frictions with the tincture of aloes over the abdomen, with the object of restoring tone to the muscles of the abdominal wall and the intestines. We believe, however, that he considers mechanical support as the most important part of the plan.

Part xxxii., p. 241

ABDOMINAL AFFECTIONS.

Hints on the Diagnosis and Treatment of.—In the treatment of acute inflammation of the bowels by purgatives, there is a danger of the irritation being propagated from the mucous to the serous surfaces; consequently, their use as derivatives cannot be taken advantage of, as in affections of the head and chest.

Of the use of opium in peritoneal enteritis, Dr. Griffin entertains the highest opinion, and relates several cases in which very large and frequent doses were given with the happiest results. In one case, first two grains and then one-grain doses were given every two hours, until thirty-two grains had been taken, two or three-grain doses having been resorted to on the occurrence of a relapse. In the case of a girl ten years of age, whose condition had been previously much aggravated by the use of purgatives, and who appeared to be sinking, twenty drops of laudanum were given, and in half an hour a grain of opium. Sound sleep ensued, and the patient, who had seemed almost moribund, was saved, the opiate being continued for some time at longer intervals. To a boy, æt. five, in whom peritonitis occurred during the last stage of typhus fever, probably from perforation, grain doses were given with a successful result. Dr. Griffin does not propose opium as a substitute for general or local bleeding where these can be borne, but as a most useful remedy where this is not the case; or where the disease continues in spite of their institution. The state of the bladder should be carefully watched, as retention of urine is not of unlikely occurrence during the use of full opiates.

Dr. Griffin does not entirely condemn the use of purgatives, even in the early stages of enteritis, but the greatest advantage is to be derived from them when the force of the disease is broken, and we wish to empty the bowels of their contents. This he effects by mild purgatives, combined

with henbane, but he would feel disposed to defer doing this till a later period, if there was no injurious distension present. He concludes, and general experience confirms the conclusion, that in the early stages of enteritis, purgatives do not act until the inflammation has been subdued by depletion, or the disease has otherwise subsided; while, as soon as this has been accomplished, the bowels act spontaneously, or by the use of mild purgatives: that if purgatives are exhibited early, and act freely, death may nevertheless ensue, unless the disease is arrested by other remedies: that purgatives may, *per se*, occasion inflammation or cause its recurrence; and that inflammation of the bowels may be subdued without any evacuation at all, and the bowels may continue confined for three or four days without any injurious distension.

In determining the diagnosis of abdominal inflammation, where both pain and tenderness on pressure exist, we should always endeavor to ascertain—1. Whether there be any pain or tenderness on pressure in the corresponding portion of the spinal column; because, if there be, although it may not absolutely decide whether inflammation be present or not, it is quite sufficient to account for both the pain and tenderness, without assuming the existence of any inflammation. 2. Whether, if there be no spinal tenderness or pain, the soreness of the abdomen be superficial or deep-seated, which may be ascertained with tolerable certainty in all cases, by an examination directed to that end. And whether, if both superficial and deep-seated, as it usually is in peritoneal inflammation, gentle, steady pressure with the flat of the hand can be easier borne than with the points of the fingers. In pain and soreness from affection of the spinal nerves it commonly can be so borne, while in peritonitis every kind of pressure, and even the weight of the bed-clothes, is very distressing. And yet, one of the best means of distinguishing hysterical tenderness will often be found to be the observation of how the slightest degree of pressure gives rise to the expression of intense suffering, although the countenance does not always corroborate this. The tenderness in these cases is quite cutaneous. 3. Whether the boundaries of the pain or soreness extend beyond what the suspected inflammation could produce. Thus, if inflammation of the liver be suspected, and we find the soreness extending to the ileum or groin, or to the opposite side of the abdomen, it is obvious the soreness cannot be attributable to mere disease of that organ. Again, if the whole abdomen be tender to the touch in a case otherwise closely resembling peritonitis, and we find the tenderness is not confined to the abdomen, but extends over the hips and lower extremities, it is obvious we can attach no importance to the abdominal soreness as a sign of inflammation.

Of the antiphlogistic powers of opium, Dr. Griffin expresses his high opinion; and states that for many years he has almost entirely relied upon it for the subdual of enteritis and peritonitis. He bleeds first, however, in subjects who will bear depletion, employing calomel also when the disease is very intense and resists opium powerfully—suspending this as soon as the symptoms give way, and giving the opium alone, whereby troublesome salivation is usually prevented. In rheumatic inflammation it is as useful. In acute inflammation of the mucous membranes opium was formerly supposed to be contra-indicated; but the cases published by Dr. Stokes and others, of cure of inflammation of the mucous membrane of the bowels with exhausting diarrhœa, show the propriety of the practice. Dr. Griffin attributes the evil effects which have followed the use of opium in

these inflammatory affections to its having been given in too small doses, which, in cases of mucous phlegmasia, suppress the diarrhoea without subduing the inflammation to which this had even acted as a relief. But in these, as well as in serous inflammations, bleeding must be premised where the strength will admit of it, applying at the same time warm poultices to the abdomen. In other cases, in which bleeding is out of the question, and opium seems powerless, as in bad dysentery, a combination of ipecacuan and opium acts sometimes surprisingly. Dr. Griffin alludes to two cases in which he gave three grains of opium with from three to five of ipecacuan every two hours with the best effect.

Although opium is contra-indicated in inflammatory affections of the cerebro-spinal system, from its tendency to produce congestion, yet when combined with sufficient doses of tartar-emetic, it allays nervous irritation, quiets the action of the capillaries, and procures sleep. Its effects are wonderful in many cases of puerperal mania, delirium tremens, and the advanced stages of fever. It is to Dr. Graves we are indebted for pointing out the value of this combination.

Dr. Graves directs four gr. of emet. tart. and two drachms of laudanum to be mixed with half-a-pint of camphor mixture, two table-spoonfuls of which are to be given for the first dose, and one every half hour afterward, until the delirium abates, or some signs of drowsiness appear.

Dr. Griffin believes that the restorative power of opium in exhaustion from hamorrhage, depends principally upon its property of producing congestion of the brain, and thus restoring tension to the cerebral vessels.

Part xiii., p. 94.

ABORTION.—(Vide "Labor.")

Abortion—Ulceration of the Cervix Uteri—A cause of.—Dr. Bennet observes that though ulcerative inflammation of the cervix, occurring in pregnant females, may generally be entirely subdued by judicious treatment without disturbance of the course of pregnancy, some cases occur where abortion cannot be prevented. This may be produced, in the early months, by disease of the ovum occasioned by the uterine inflammation; and, in a more advanced stage, by contraction of the uterus excited by reflex action. He relates such a case, met with in the sixth month of pregnancy. The patient had miscarried four times previously. The first was at three months, the others at about six months; they were preceded by slight pains and flooding, and the case now referred to had a yellow discharge ever since the second miscarriage. Dr. B. says:

On examining with the hand, I found the abdomen developed, the uterus rising above the umbilicus, as in the beginning of the seventh month of pregnancy. The vagina was moistened by an abundant secretion. The cervix, in its usual position, more voluminous and softer than it is normally at this period of pregnancy, constituted a quaggy mass; its surface, of a fungus softness, presented, more especially round the os, which was very open, numerous small indurations, about the size of small peas. On withdrawing my finger, it was covered with thick whitish pus. This pulpy, fungous state of the cervix, along with the partial indurations, the purulent discharge, the general symptoms, and the previous history of the

case—all indicating the existence of extensive ulcerative inflammation of the cervix, I mentioned the necessity of an instrumental examination. The vulva was congested and swollen; the vagina red, tender, and bathed with pus. On getting the cervix between the extended blades of the bivalve speculum, I found that it presented a large, soft, florid, fungous mass, covered with pus, and bleeding easily on being touched. The entire cervix was covered with these fungous granulations, and presented a very different appearance to what ulceration of that organ offers in the unimpregnated state. It was a fungous ulcerated surface softened and broken up. From the regularity of its surface, however, the absence of uneven, deep-seated induration, and the frankly purulent nature of the secretion from its surface, it was evidently an inflammatory ulceration that I had to deal with. I therefore touched the entire ulcerated surface with the nitrate of silver, and ordered astringent vaginal injections with the sulphate of zinc night and morning; mild aperients, and a tonic antacid mixture (compound infusion of gentian, and carbonate of magnesia); light diet; complete rest.

The application of the nitrate of silver was followed by a slight oozing of blood for three days, but by no increase in the local pains. The latter are still severe in the lower segment of the developed abdomen, and in the loins. The yellow discharge is very abundant. She has the same bearing-down pains which preceded her other miscarriages.

The pains continued, and she bore a seven months' child. In a few weeks the treatment was resumed, the ulcerated surface being cauterized once a week, with nitrate of silver, or the acid nitrate of mercury. In the beginning of June the catamenia appeared, attended with much pain. At the end of two months, the ulceration was healed, and all the symptoms ameliorated. Dr. Bennet makes the following remarks:

When this disease exists in the pregnant state, its symptoms are the same as in the non-pregnant condition, but obscured, and more or less modified by the pregnancy. It is a frequent cause of disordered health during pregnancy, or of "laborious pregnancy." It is also one of the most frequent causes of abortion, both in the early and in the later months of pregnancy. It may occasion abortion; either directly, by reflex action, or indirectly, by giving rise to disease of the ovum or placenta, or to uterine hæmorrhage.

The instrumental examination of females laboring under inflammatory ulceration of the cervix during pregnancy is unattended with any risk, either to the mother, or to the fetus; and it is absolutely necessary, in order not only fully to recognize the disease, but also to treat it. The treatment of these forms of uterine inflammation must be governed by nearly the same rules in the pregnant as in the non-pregnant state. A properly conducted treatment is nearly always successful in preserving the life of the child, and the integrity of the pregnancy, as well as in curing the inflammatory and ulcerative disease. It is also the only means we possess of warding off the imminent danger of abortion to which the patient is exposed. This form of uterine inflammation being, generally speaking, the cause of those repeated and successive miscarriages which prevent females giving birth to a living child; it is only by curing it that we can hope to make them bear the product of conception to its full period.

The serious inflammatory and hæmorrhagic symptoms which sometimes follow abortions are generally occasioned by unrecognized inflammatory

ulcerations of the uterine neck. On investigation it often becomes evident that this disease existed previous to the abortion, and occasioned it. The same remark may apply to some cases in which the above-mentioned symptoms precede and follow labor at the full time, as ulcerative inflammation of the cervix in the pregnant state is by no means necessarily followed by abortion. Although inflammatory ulceration of the cervix seems generally to be a cause of sterility, yet, as will appear from the above essay, there are frequent exceptions to the rule. In some females, the tendency to become impregnated is so great, that no amount of uterine disease appears to prevent conception taking place. *Part xv. p. 202.*

Puncturing the Membranes to produce Abortion.—To produce abortion during the early months of pregnancy, use a gum male catheter sufficiently firm to preserve its straight form against moderate resistance, and having a perforation at its extreme point large enough to admit the passage of a common wire stilet. The patient being placed on her left side, guide the instrument by the finger into the os uteri and through the cervix; pass it on until it meets the membranes, then introduce the stilet, and press it through the opening at the apex of the catheter so as to perforate the membranes; then push the catheter itself forward, and evacuate the liquor amnii. *Part xvi., p. 244.*

New mode of bringing on Premature Delivery.—To excite premature labor, inject about an ounce and a half or two ounces of tar water slowly and gently through a canula introduced about two inches between the membranes and the anterior wall of the uterus. Repeat the operation in six hours, if labor does not seem to be approaching. *Part xvi., p. 245.*

Prevention of Habitual Miscarriage.—Dr. Griffin, physician to the county of Limerick Infirmary, recommends to the notice of the profession the use of tonics and antispasmodics when there is a habitual tendency to abortion or miscarriage. In three cases, which he treated successfully, he employed the following remedies—two grains and a half of oxide of zinc, with two grains of extract of hops, three times a-day; and, after each pill, two tablespoonfuls of a mixture of valerian, aromatic spirits of ammonia, and infusion of snake-root. He recommends also a box of pills to be kept by the patient, containing a grain of opium in each, to be taken when pain comes on, and to repeat the dose every hour till relief is obtained. *Part xvi., p. 270.*

Note on Abortion.—If, after a careful examination, we find the cervix preserves its normal length, figure and thickness, we must try to prevent the abortion; but if the cervix is found shortened or distended, and the organ is assuming the ovi-form shape, we must assist, by all safe means, the expulsive action. In making this examination, do not introduce the finger into the os. *Part xvii., p. 215.*

Abortion: Flooding in cases of threatened.—When there is severe flooding during threatened abortion, evacuate the liquor amnii, pass a conical plug into the os uteri, fill up the vagina behind it, and give one or more doses of ergot. *Part xvii., p. 234.*

Abortion: Prevention of.—We must endeavor to ascertain the cause of the abortion, and attempt its removal. If the cause be ovarian irrita-

tion, we should give warm hip baths, not exceeding blood heat, and enemata of the same temperature; apply a plaster of opium to the sacrum, and enjoin the avoidance of coitus; these precautions must be especially attended to at the *catamenial* or *periodic* dates of pregnancy, for ascertaining which a little table recently published, termed a *periodoscope*, will be found useful. *Vaginal* irritation being not an uncommon cause of abortion, the most rigid continence must be observed during the whole of pregnancy, by women who have previously aborted; and if we use the plug in threatened abortion, we must take care that it is not too large, and that it is introduced into the upper and roomy part of the passage. *Uterine* irritation, dependent on ulceration of the os and cervix, or retroversion, must be treated by the means calculated to relieve those diseases. *Mammary, dental, vesical and rectal* irritation, if existing, must also be removed by appropriate treatment. *Morbid conditions of the placenta* often cause abortion by preventing the due oxygenation of the fetal blood. We must treat these cases by great attention to the depuration of the blood of the mother, by means of carefully regulated diet, the respiration of pure air, attention to the secretions, etc. The exhibition of chlorate of potash has been found useful by Professor Simpson, by arterializing the maternal blood. To eradicate the abortive diathesis, prolonged continence is especially necessary. Besides this, any source of irritation and any disease of the utero-vaginal passage must be relieved; and such tonics as iron, the cold douche, and cold bathing must be employed. In very obstinate cases, it is recommended to try the effect of a long-continued galvanic current through the spine and sexual organs, or to prescribe small and continued doses of ergotine or strychnine.

Part xviii., p. 251.

Mode of inducing Abortion.—A safe and efficient mode of inducing premature labor, is by the warm douche applied to the uterus twice a day, by means of a canula properly introduced into the vagina. The water should have a temperature of 108° F., and should be projected with a force equal to a fall of eight feet.

Part xix., p. 235.

Abortion.—In cases of inevitable abortion, where the uterine contractions are feeble and inefficient, and there is considerable hemorrhage, let the patient swallow pounded ice freely, with a view to promote the action of the uterus.

Part, xix., p. 233.

Abortion; Threatened.—At an early period of the attack, when the hemorrhage is slight, and the pains few and weak, give tincture of Indian hemp (Donovan's tincture of the resin), in doses of five drops thrice a day.

Part xix., p. 329.

Induction of Abortion by puncturing the Ovum.—The plan for opening the ovum by puncturing the membranes, is by employing an instrument which consists of a cylindrical silver canula, slightly curved at its further end, with a single opening, and two wire loops projecting from the sides of the other extremity, through which two fingers may be passed to hold and fix it. A movable stilette, tipped with a sharp point like a trocar, and so cut that the point does not touch the sides of the cylinder when the stilette is run through it, can be made at option to pass beyond the end of the canula. The way to use it is this: Place the patient, if you like, on the left side, run up the index finger of the left hand to the

os uteri, and if possible *within* it; then guide the instrument with the point of the stilette concealed in the canula, on the finger, within the uterus, and carry it forward until you feel that there is some resistance; then press the point of the stilette against the membranes and press the canula a little further on. Then withdraw the stilette and let the liquor amnii flow through the canula.

The time which elapses between the puncture of the ovum and the supervention of labor varies very much in different cases. Five or nearly six days is a long interval. *Part xx., p. 200.*

Abortion produced by Metastasis in Cynanche Parotidea.—[Mr. Salter's patient was a lady about twenty-five years of age, who was attacked with cynanche parotidea when advanced just beyond the third month of her third pregnancy. (She had gone to the full time in her previous pregnancies.) The usual treatment was adopted. After a day or two of vaginal discharge, uterine pains and hemorrhage came on suddenly in the night, and a fetus was discharged. The hemorrhage continuing, Mr. Salter gave ergot of rye, and adopted other proper treatment, and in fifteen hours after the birth of the fetus, he was enabled to remove the placenta. Mr. S. says:]

We have abundant experience to show, through the influence of the disease, the relation subsisting between the parotid glands, whilst affected with this specific inflammation, and the testicles in the male; and also between the same organs and the breasts in the female; and from the known sympathetic association of the mammary glands with the ovaria and uterus, it may readily be supposed that in cynanche parotidea, an irritation may be communicated to the uterine system leading to results incompatible with the continuance of the process of utero-gestation. And, on the other hand it is possible, in this chain of causation, in cases where the female breasts are affected in cynanche parotidea, that the influence on them may be secondary to some primary disturbance of the ovaries, though this may not be disclosed by any palpable symptoms referred to the latter organs themselves. The analogy between the testes and the ovaries, and the sympathy of the breasts with the ovaries, are in favor of this hypothesis. *Part xx., p. 201.*

Uses of Opium in.—[Speaking first of the uses of opium in threatened abortion, Dr. Lever says:]

In the management of cases of threatened abortion, it is my rule, if possible, to get a thorough knowledge of the immediate or exciting cause of the hemorrhage or pain, or both; secondly, before using opium, to ascertain the state of the os uteri, and especially whether the anterior part of the neck has lost its plumpness and firmness, and has become soft and baggy. If with the discharge we have a patent state of the os uteri, and if the neck be soft and loose, the exhibition of opium will do harm, by retarding the emptying of the uterus, which must sooner or later take place. But while I do not advocate the use of this drug under the circumstances related, I can speak loudly in its praise after the abortion has occurred, especially if such have been attended with a large loss of blood; it will allay excitement, tranquillize the circulation, and procure sleep. These remarks, however, do not altogether apply to those cases which menace from accident, or from mental causes, or those which may be said to be due to habit. In these, with the application of cold, perfect

quietude, and unstimulating diet, I have known the exhibition of opium by mouth—or, what I prefer, a cold starch injection, with opium thrown into the bowel, and repeated every night or more often, according to existing circumstances—followed by the best results. *Part xxi., p. 305.*

Prophylactic Treatment of Habitual Disposition to Abortion.—When there is no local or general plethora, but the disposition to abort depends upon weakness of the uterine system, give savine, an infusion being made of from two to four drachms to six ounces of boiling water; give a table-spoonful morning and afternoon, in the intervals between the menstrual periods; rest of the uterine and general system, and regulation of the diet, being also enjoined. If, in addition to the uterine weakness, there is augmented irritability and contractility, give ergot of rye in conjunction with the savine.

In cases of habitual abortion, occurring in women of weak and irritable fibre, and without vascular congestion, the administration of assafœtida as soon as pregnancy occurred, has been very beneficial.

Part xxi., p. 308.

Auxiliary Treatment of.—In a case of abortion at the sixth week, the administration of chloroform has been successful, in causing dilatation of the os uteri.

* * * * *

In abortion during the early months, the ovum can always be got away by giving a stimulating enema, such as turpentine.

Part xxi., p. 303.

Premature Labor—Induction of by Galvanism.—In a case where it was necessary to induce premature labor, for half an hour, on the 23d of Jan., the poles of the galvanic battery were applied on either side of the uterus. The womb became contracted. On the 24th and 26th the application was continued one hour, and on the evening of the 27th slight pains came on. On the morning of the 28th they had increased, and at 9 A.M., the child was born. Galvanism is more valuable than ergot in these cases, because if any unforeseen obstacle occur to the birth of the child, rupture of the uterus might be induced. Besides, if the case were prolonged, there is some danger, from the number of doses required, of producing ergotism in the mother.

Part xxix., p. 203.

Premature Labor Artificially Induced by Ergot of Rye.—In a large number of cases the following prescription proved successful in inducing premature labor. R. Secale cornut. pulv. ʒij.; aque ferventis ʒvj.; infunde per semihoram in vasa leviter clauso, et cola. R. Infusi suprà prescripti ʒvss.; acid. sulph. dil. ʒss.; syrapi ʒij.; tinct. card. co. ʒij.; Misce, sumat partem quartam 4tis horis. The doses required varied from three to thirty.

Part xxix., p. 274.

Syphilis—a Cause of Abortion and premature Labor.—Dr. Johns maintains that there is but one method of preventing abortions and premature labors in females tainted with syphilis, and that is the use of mercury for both parents—to the female when not pregnant—the patients being kept under its influence for six weeks or two months. Dr. Johns draws the following deductions:

1. That secondary syphilis is not curable in the pregnant female.

2. That mercury is the only certain means of preventing the abortions and premature labors depending on syphilis.

3. That both parents must be submitted to this treatment.

4. That as the disease in such cases exists in the secondary form, the system must be kept under the influence of the metal for at least six weeks, and in some cases even longer.

5. That syphilis is communicable to the female through the semen of the male, without the presence of any ulcer or purulent discharge.

6. That secondary ulcers on the female genitals do not infect the male by whom she was contaminated, so long as he is poisoned by the infection which gave it to her.

7. That as syphilis is communicable from a child to its nurse, and *vice versa*, great care ought to be taken that an infected child be not given to a sound nurse, nor a pocky nurse be hired for a sound child.

8. That syphilis in infants is only curable by mercury, which is best given directly to the child, as also to its nurse.

9. That there is no disease of the uterus, save the Hunterian chancre, which is pathognomonic of syphilis.

10. That the order of abortions and premature labors is a very good test of their cause.

11. That ulceration may exist to a great amount on the os and cervix uteri, and not be discoverable by the toucher.

12. That the patulous state of the os uteri, induced by inflammation, may be present during pregnancy.

13. That children dying in the uterus from syphilis, like those dying from other causes, are thrown off within a fortnight or so after the cessation of vitality.

14. There is a class of abortions and premature confinements preventible by iodide of potassium and similar medicines.

Part xxx, p. 200.

Treatment of Abortion.—When nervous excitement prevails, with intermitting uterine pain, a full opiate is of great service. Dr. Fleetwood Churchill has given the cannabis Indica with good effect. As astringents, the acetate of lead or gallic acid with opium are the best. The patient must be kept cool, and in the horizontal position, for standing greatly adds to the probabilities of abortion. Keep the bowels open with conf. senna, or potass. bitart.; castor oil irritates the uterus and ought not to be given. When abortion has threatened at a catamenial period, great care ought to be taken as the next monthly period comes round, to avoid every cause of irritation, and keep perfectly quiet.

In severe cases, where all the more powerful astringents have been tried in vain, the vagina must be plugged firmly with lint or sponge; if this do not arrest the hemorrhage, the membrane should be ruptured to excite expulsive action of the uterus. If the bag of the early ovum can be felt with the finger in the cervix uteri, it can generally be separated by careful manipulation. Dr. Simpson recommends the introduction of a sponge pessary, to dilate the os and cervix, but if you do use the sponge, you must not allow it to remain long enough to become fetid. Galvanism has been suggested by Dr. Robert Barnes. A drastic cathartic will often complete the expulsion of an ovum in a very satisfactory manner.

Part xxxiii., p. 255.

Abortion, with Flooding—New Plug.—The common vulcanized india-

rubber air ball, about the size of a large orange, makes an admirable and easily-adapted plug. If fastened to one end of a metallic tube, furnished with a stop-cock at the other end, when the air is pressed out and the tap turned, it may be very readily introduced into the upper part of the vagina; air may then be admitted by turning the tap, or, if necessary, cold water may be injected into it. *Part xxxiv., p. 235.*

ABSCESS.

Abscesses about the Anus and Perineum.—Abscesses about the anus or in the perineum are frequently met with in phthisical patients, and it is often dangerous under such circumstances to operate, as the thoracic symptoms are very apt to increase, when the local disease is meddled with.

Part iii., p. 116.

Abscess in the Lumbar and Sacral Regions.—Caries of the crest of the os ilii is a not unfrequent cause of symptomatic abscess in the lumbar and sacral regions.

Part iii., p. 116.

Abscess in the Calf of the Leg.—In certain individuals, after lithotomy or other great operations, an abscess is apt to be formed in the calf of the leg.

Part iii., p. 116.

Mammary Abscess.—Complete compression of the breast, by means of strips of plaster, broad and sufficiently long to go several times round the body recommended. To compression thus employed the authors attribute many advantages. In the first place, it immediately relieves the pain; it combats and diminishes the inflammatory engorgement, at whatever period it is applied. When employed after opening the abscess, it decidedly favors the evacuation. And although when employed too long, at a period when the process of suppuration is active, it might have the disadvantage of making the pus extend over a larger surface, yet this may be avoided by removing the bandages at a time when it is probable that matter has fairly formed. If this be done, and the abscess opened, the bandages may be again applied, after two or three days' poulticing, with good effect.

Part iv., p. 104.

Chronic Abscesses—Sub-Cutaneous Method of Opening.—This operation is in order to prevent the admission of air into the cavities of psoas and other abscesses of the like kind. M. Guerin uses a flat trocar, long, but of small diameter, and inclosed tightly in a canula. The canula is furnished with a cock near its larger end, which, when opened, permits the trocar to pass, but when shut, exactly closes the canula. The outer end of the canula fits on the nozzle of an ordinary syringe, and all those parts are so adapted that no air may pass where they fit one to the other. A fold of skin being made at some little distance from the abscess, the trocar and canula are introduced at its base, and carried under the integuments till the point of the former has entered the sac; then the trocar is slowly withdrawn, and at the instant that its point passes the cock, that is turned, and the pus prevented from flowing out. The syringe is now adapted, the cock turned back, and the pus sucked out at once, or with one or more emptyings and refillings of the syringe, if its quantity be very large. When this is finished,

the canula is slowly withdrawn, care being taken to keep the walls of the track through which it passes close together. A pad and bandage are then put on the sac, and the track leading to it, and the orifice of the latter is closed with sticking-plaster. *Part v., p. 141.*

Chronic Abscess and Disease of the Heart and Joints.—In this case there was a chronic abscess of considerable size, the hand's breadth above the right knee, the joint was much swollen, and there was a large indolent ulcer on the leg on the same side: her pulse was quick, and she was considerably emaciated. The following mixture was ordered:

R Decoct. Guaiaci ʒviij. Potass. Iodid. gr. xxiv.; Tinc. Cardam. co. ʒss.; Tinct. Hyosciam. ʒi. M.

Dose.—One ounce, three times a day. An ointment consisting of equal parts of mercurial and iodine ointments was applied over the abscess.

The ulcer on the leg was dressed with lint, moistened with black wash, and covered with oiled silk. The patient recovered. *Part vi., p. 64.*

Urinary Abscess—Complications of.—Sometimes the abscess in the perineum is accompanied by typhoid symptoms. If it is opened, the matter that issues is putrid and urinous; if the opening is deferred, the patient may die.

Sir B. Brodie remarks that it is often more complicated. It is not always confined to the perineum; sometimes it makes its way forward through the upper part of the scrotum, and presents itself on the lower part of the penis, between the scrotum and the glans. At other times it burrows in the opposite direction, forming a large collection of matter in the nates, or it may burst in the groin, or in the scrotum. In one case, in which I had the opportunity of examining the body after death, I found a large abscess in front of the pubes, extending half way toward the navel; another among the adductor muscles of the left thigh; and a third among the muscles at the upper part of the right thigh, as far outward as the *foramen ovale* of the ischium; the periosteum having been destroyed, and the bone itself rendered carious to a considerable extent; and all these abscesses could be traced into an abscess in the perineum, communicating with the urethra behind a stricture by a small orifice. In another case there was a *fistula in perinæo*, communicating with a large abscess of the pelvis on one side of the bladder. (*Vide*, Art. "Stricture of Urethra.")

Part vi., p. 93.

Milk Abscess.—In cases of inflammation of the mamma, threatening milk abscess, the application of cataplasms, formed by adding to any quantity of the *acetous tincture of the unripe fruit of the persimmon*, when hot, the requisite proportions of any kind of farinaceous material, recommended. *Part vii., p. 30.*

Mode of forcing out Collections of Pus from Bony Cavities by Atmospheric Pressure.—In a case of collection of pus in the antrum of Highmore, for the evacuation of which a tooth had previously been extracted which communicated with the cavity, but through which the matter would not descend, owing to well known physical principles, a blow-pipe was procured, having the necessary degree of curvature at its smaller end, and a bladder attached to the other end, which was inflated by the patient. The nozzle of the blow-pipe was then introduced into the orifice in the bottom of the maxillary cavity, when, on compressing the bladder, the air

ascended to the top of the antrum, and forced the matter downward into the mouth. By this means about one ounce and a half of fetid matter was discharged; two ounces were collected, but probably at least half an ounce was saliva. The same operation was repeated morning and evening, and a small quantity of matter obtained for some time after.

Part ix., p. 191.

Mammary Abscess—Treatment of by the Breast-pump and Syringe.—

This very annoying affection most commonly occurs during lactation, and is then more unmanageable than when the breast is in its natural state. It is preceded by inflammation which is either acute or chronic, and as Sir Astley Cooper has succinctly expressed it—"is adhesive in the first stage, suppurative in the second, and ulcerative in the third."

Notwithstanding the most prompt and judicious treatment of the first stage, suppuration will occasionally take place. As the inflammation by which these abscesses are preceded is either acute or chronic, so is the abscess itself. When chronic, they are apt to give rise to deep-seated sinuses, filled with a soft fungus. Previous to the time of Mr. Hey, the practice often was to extirpate the breast for this affection: he, however, suggested, as preferable, dividing the sinuses throughout. Sir A. Cooper, instead, recommended that they should be syringed with a solution of two or three drops of strong sulphuric acid to an ounce of rose-water, and that the same should be applied as a lotion to the breast. It is very evident that, however treated, this is a very formidable affection, and it is of great importance to prevent the formation of the sinuses. For this purpose, Sir Astley Cooper recommends early and free opening of these abscesses, particularly if there be much fever and symptoms of hectic, *unless* the abscess be deeply seated, in which case the aperture closes, and ulceration will still continue. In obedience to the precepts of Sir Astley Cooper, as soon as the indistinct fluctuation, or rather the boggy feeling, by which the formation of matter in these abscesses can be detected, is distinctly ascertained, let a small bistoury or abscess lancet (the common lancet will sometimes not penetrate deep enough) be carried down until the matter begins to escape. After all that can be squeezed out by the pressure is removed, let the breast-pump be applied over the orifice, and the rest of the matter be drawn out. The sinus is then to be injected with some astringent solution, by means of a small syringe. The syringe employed is the small glass one for the urethra, sold by most apothecaries. The lotion Dr. Wood has used is the one recommended by Mr. Hey, though it may be doubtful if it possesses any peculiar advantages.

℞. Aquæ puræ, ℥xv.; spt. rosmarin., ℥j.; spt. lavandul. comp. ℥j.; zinci sulphat. gr. xxx. M. fiat lotio.

The sulphuric acid lotion of Sir A. Cooper will probably answer as well. A pledget of lint dipped in the lotion is then to be applied outside, and covered with oiled silk; over this a compress may be placed, and firm pressure maintained on it by means of adhesive plaster. In some cases the walls of the abscess will unite at once, and all that remains to be done is to trust to time for the removal of the surrounding induration, or to attempt to discuss it by frictions with camphor liniment, mercurial or iodine ointment, or the application of the emplastr. ammoniaci cum hydragyro.

Where the surfaces do not thus unite, the falling in of the breast, pro-

duced by the exhaustion of the glass, will be found to have disappeared ; the cavity in such cases has only to be injected two or three times a-day, which will serve at once to keep the opening free for the discharge of matter, and will also tend to arrest the further extension of the ulcerative process. The treatment of acute and more superficial abscess may be conducted on the same general principles. The early evacuation of the matter saves the patient much suffering, and also enables the nursing on that breast to be resumed at a much earlier period. The cicatrix is also much smaller than in cases where the matter is allowed to discharge spontaneously ; indeed, if the incision be made in the direction of the natural folds of the breast, that is, radiating toward the nipple, the cicatrix will in a short time be imperceptible.

Part xi., p. 169.

Abscess of the Tibia.—After alluding to organization of bone, and its liability, the same as other tissues, to diseased action, and remarking upon the peculiarity of the symptoms in consequence of the presence of phosphate of lime, Sir B. Brodie asks, what symptoms lead us to suspect the existence of abscess in the tibia, and what can be done for its relief? He replies thus :

When the tibia is enlarged from a deposit of bone externally—when there is excessive pain, such as may be supposed to depend on extreme tension, the pain being aggravated at intervals, and these symptoms continue and become aggravated, not yielding to medicines or other treatment that may be had recourse to—then you may reasonably suspect the existence of abscess in the centre of the bone. You are not to suppose that there is no abscess because the pain is not constant ; on the contrary, it very often comes on only at intervals, and in one of the cases which I have related, there was, as I then mentioned, an actual intermission of seven or eight months.

After the disease has existed a certain number of years, indeed, the pain never entirely subsides, but still it varies, and there are periods of abatement and of exacerbation. The combination of circumstances which I have described will fully justify you in making an opening into the bone with a trephine. But how will it be if you are mistaken? This will not often occur, but if it should, really the taking out a circle of bone can be of no consequence ; no injury follows the operation ; it is unattended with danger. The operation is a very simple one. You expose the surface of the bone, and make a circular opening with a trephine at that part where there seems to be some tenderness and some pain on pressure. One principal thing to be attended to is that you have a proper trephine. One of very small diameter is quite sufficient. The operation may be more easily performed with a trephine having no shoulder ; which will at once penetrate to the abscess, however deep it may be, and render the chisel unnecessary. The after-treatment is as simple as possible. There may be some pain for a day or two, and especially, as in the case I last mentioned, if the patient be a hysterical female, there may be hysterical pain afterward ; but all that is required is to maintain the general health, and lay on some simple dressing ; the bone soon granulates, the space is filled up by a sort of fibrous substance, and the wound cicatrizes.

Part xiii., p. 180.

Abscess in the Perineum.—The following is an abbreviated lecture on this subject, by Sir B. Brodie :

Abscesses may occur in the perineum attended with disease of the urinary organs, in the cellular membrane, or in any other part. Abscesses in the perineum are generally connected with the prostate gland, and occasionally with the bladder. The most common circumstances under which these abscesses form are when the patient labors under gonorrhœa. Thus, a patient has a profuse gonorrhœal discharge, which at first diminishes little by little, till it disappears entirely; this may happen in consequence of his using strong injections, but it often occurs in that stage when surgeons do not recommend injections, as in the inflammatory stage. The discharge suddenly ceases, then the patient complains of pain in the urethra, and experiences difficulty in making water, and particularly when in the commencement, from the pressure at the neck of the bladder, and the water comes away in a diminished stream. There is also pain felt in the back, groin, pubes, and sense of weight in the perineum. The stream is very small, and sometimes there is complete retention. The patient at last feels fullness in the perineum, which increases very much, and which depends on the presence of matter which forms deep in the perineum. If this is left to itself it breaks, perhaps, in the perineum or in the neck of the bladder, or sometimes, instead of coming down to the perineum, it makes its way back to the rectum and bursts in front of the anus. Now, you will observe that in this case all the painful symptoms indicate inflammation of the neck of the bladder; I believe there is a translation of the inflammation from the urethra to the prostate gland or cellular membrane covering it. It may be that this inflammation is not only in the prostate itself, but in the cellular membrane covering it, in the same manner as you sometimes find suppuration about lymphatic glands. There is only one circumstance that would lead us to suspect that abscesses of the perineum have their origin in another way than what I have stated; it is that when the abscess bursts, upon the patient making water, a small quantity of urine comes away from the perineal opening.

When you are called to a patient under these circumstances of abscess after stoppage of the gonorrhœal discharge, and there is inflammation of the neck of the bladder, it is very important that you should stop the progress of this inflammation of the bladder, to prevent its going on to suppuration. The patient should lose blood by the application of leeches to the perineum, or by cupping; but employ none who is not a dexterous cupper, for it is not every cupper who can do it in this part successfully, though in London there are plenty who can do it very well. The patient may lose from \mathfrak{v} . to \mathfrak{xxiv} . of blood, according to the intensity of the symptoms and the strength of his constitution. Give calomel and opium, so as to place the patient under the influence of mercury, as in the treatment of inflammation in general—as, for instance, of the iris; two or three grains of calomel and half a grain of opium, or more; endeavor to get the gums affected as soon as possible, until there is time for the cupping to have effect. You may relieve the patient by means of an opiate clyster; I sometimes inject \mathfrak{ss} . of tinct. of opium and \mathfrak{zij} . of starch. The opium tends to allay the inflammation as well as the pain. A person sometimes cannot empty the bladder, and a straining is kept up from the morbid sensibility of the bladder, and this straining aggravates the inflammation. Now, by administering opium you allay the pain which causes him to strain, and the consequence of the straining ceases.

Another thing is necessary in some instances. The patient's urine must

be drawn off with a catheter. Use, then, a small elastic catheter, and even when there is not absolute retention of urine, as when the patient is constantly straining to make water, because he cannot entirely empty the bladder, but at every time leaves some behind. This residuary quantity of urine keeps up a constant irritation, which the use of the small gum catheter will prevent; it may be used for this purpose two or three times in the day.

But this catheter you must employ with a light hand, and as gently as possible, as the inflamed parts are very much in danger of injury where the greatest care is not taken. Supposing the disease is in an advanced stage, and you have hardness and fullness of the perineum, and you examine the perineum, and can feel no matter there, but there is in one spot a more fluctuating feeling than elsewhere, and in some cases a rigor, or perhaps more than one. But the mere circumstance of hardness and increase in size of the parts is sufficient to show that there is a deep-seated abscess; and the matter is situated behind the triangular ligament, which prevents its coming to the surface, and hinders you from feeling the fluctuation of matter. If you wait till the fluctuation becomes distinct, you may wait till the abscess has produced serious injury, by dissecting its way among the neighboring textures. When you have hardness in the perineum in such a case, you must introduce the lancet in that part in which the hardness is most distinct; but the lancet will be required to enter very deep, even up to the shoulder, if the lancet is a common one, before you can reach the seat of the matter; this is especially the case when your patient is fat, so that the lancet will barely reach it. However, you may introduce the lancet with the greatest confidence, there being nothing to injure; if you introduce it to an insufficient depth, you do no good; and if you introduce it to a proper depth, the matter comes away, and your end is gained. When no matter has been felt externally, I have sometimes let out ʒij. or ʒij. of pus, by this use of the lancet, from under the deep fascia.

In some cases you find that the abscess becomes fistulous; a little urine drips out through the opening in the perineum, only a few drops perhaps at first; the flowing of these few drops will prevent the abscess from healing, and make it a fistulous abscess; but the urethra contracts in the membranous part, and all you have to do is to introduce a bougie or sound every now and then into the bladder; the contraction is not a permanent one, and there is no difficulty in doing this; you may introduce a full-sized sound almost in the first instance; should this, however, distress your patient, you may use a small one at first, and increase the size by degrees—using it once in two or three days. By this means the urine will be brought out at its proper canal, instead of the unnatural opening, which soon heals.

Abscesses of the perineum are often old strictures of the urethra. The patient's stricture prevents his making water in a full stream, and the urine is pressed against the back part of the urethra; this constantly occurring, at last the part ulcerates. At first the hole is not much bigger than a pin, through which a little drop of urine will escape into the cellular membrane, whilst the great part will go along the natural passage, and half a drop is sufficient to cause inflammation of this membrane.

You are called to a patient with an old stricture of the urethra, and you find symptoms of matter forming in the perineum, hardness and swelling; but, besides these symptoms, there is very great constitutional disturb-

ance. You find a small, quick pulse, dry black tongue, hot skin, sordes of the teeth, and the patient looks like one dying of putrid fever. These symptoms are caused by the generation of carbureted hydrogen and sulphureted hydrogen from the putrid matter resulting from the mixture of urine with pus; and patients have frequently died of the poisonous gases thus absorbed into the system.

This is a very distressing case, but you may generally relieve it. In cases of stricture of the urethra, the treatment of abscess is different in one respect from those in which the abscess arises from gonorrhœa: in these last you may prevent the formation of matter, but in the other case you cannot prevent it, indeed you should not, and by applying leeches and exhibiting mercury you only do harm; you may retard this formation of matter and thus prolong the case, but you cannot prevent it. Rather let the patient foment the parts, let him use the warm bath, and do all you can to promote suppuration; let him set over a bidet, and sponge the parts three or four times a day. Then, as soon as the abscess is well advanced, let out the matter with a lancet, especially if there are symptoms of presence of putrid matter, without a moment's delay: this has been done over and over again. Patients have been brought into this hospital at death's door, with hardness in the perineum, from presence of an old abscess, and all the symptoms of dying from putrid fever; I have run in a scalpel and found matter—I never failed; the moment the matter has been let out, all these symptoms have subsided.

These cases of abscess in the perineum, with typhoid symptoms or retention of urine, or both combined, require immediate attention; their urgency will not allow you to go home and think about the case, or to consult with another upon it; while you are so doing the patient might die; it is, therefore, of the greatest importance that you should bear in mind what I have just said, in order that you may have a fund of knowledge available at any moment. The treatment of these abscesses, then, in the first instance, is as simple as possible, namely, abscesses in the perineum, connected with old strictures, require to be opened, and, if not urgent, you may let it come near the skin before you make an opening, but if it is urgent, however deep, you must make it directly. But I told you there was a communication between the urethra and abscess: sometimes the opening is small, and only a drop of urine can get into the abscess; and sometimes the opening is large, and the patient will make as much or more water through the orifice in the perineum, as through the natural passage. It was at one time thought that these fistulæ should be laid open like fistula *in ano*.

You cannot here perform that operation for obvious anatomical reasons. It was formerly supposed that all fistulas required to be laid open, but, except those in the rectum, there is no fistula requiring to be laid open unless there is a lodgment of matter. The first thing required for the healing is, that matter should come out as fast as it is generated, whether in one part of the body or another.

Part xv., p. 229.

Best means of Opening certain Abscesses.—Dr. Hargrave criticises the ordinary practice of opening abscesses in the groin by an incision parallel to Poupart's ligament. He states that in this case the lips of the wound are never at rest, being continually displaced by the movements of the abdomen and by the motions of the thigh, which movements cannot be

entirely prevented by the best adjusted bandages. These unpleasant results can, he observes, be always obviated by opening the abscess by an incision at right angles to Poupart's ligament. By this practice, the abscess is fully evacuated, the lips of the wound assume an oval figure, they remain in repose, not being affected by the abdominal movements, and when the incision heals, the mark is scarcely apparent.

There are certain deep-seated abscesses, occasionally met with in localities rendered dangerous by the proximity of large vessels, such as the calf of the leg, the sole of the foot, and the neck. Dr. Hargrave asks when the abscess is in the calf of the leg, at a considerable distance from the surface, between the thick superficial, and deep layer of muscles, and in the vicinity of the popliteal space, are we to cut boldly down to the matter, as is advised by some surgeons? Dr. Hargrave thinks not, but recommends instead, that a careful examination be made along the external and internal part of the leg; and if the abscess points externally, to make the incision parallel and posterior to the fibula, which will allow of the separation of the muscles, and puncture of the abscess without risk.

In opening abscess in the sole of the foot, in which the matter has a tendency to pass through the metatarsal spaces, and to point on the dorsum of the foot, he advises that the pus be evacuated, not by a direct puncture through the sole of the foot, but by incision along the outer edges of the foot, near the fifth metatarsal bone, when, by dividing the subjacent tissues, the very centre of the sole of the foot may be reached without danger of wounding any important part.

Part xvi., p. 321.

Treatment of the Abscesses which precede Fistula in Ano.—Mr. Vincent says: I have many opportunities of treating those previous abscesses from which fistula in ano are formed. In that mass of adipose substance filling up the ischio-coccygeal space, the patient's notice is perhaps drawn to a deep tumor, just differing in substance enough to be clearly distinguishable from the surrounding structure, of a doughy consistence, little sensible, and not at all rising to the level of the surface. This is, I apprehend, the first abscess in its earliest state, which, if allowed to go on, will end in the genuine fistula in ano. I have had such cases in the hospital, and have no doubt that this is the fact, as I have compared these sort of swellings with other presentations in a more advanced stage in the formation of fistulae. The practice to be adopted is unhesitatingly pointed out: this lumpy mass is to be transfixed; and this I have done the very first moment the case has been presented to me. I plunge a knife down to the very centre of the mass, and then I have found a small quantity of pus come out; and upon passing my finger down (and the opening should always be large enough to admit this part), I have found in the centre of the mass a small cavity of the peculiar pulpy feel that is familiar to surgeons as the interior of an abscess. This prompt measure stops all further progress of the abscess, which otherwise would lead its way either to the rectum or to the surface, and terminate in fistula. The course of these abscesses, when opened, is to close, and finally heal; but the surgeon must not expect that they will heal with the readiness of ordinary active abscesses.

Part xvii., p. 173.

Treatment of Mammary Abscess.—The following is a case of no very unusual occurrence: A mother loses her infant, and broken-hearted at the event, she neglects to pay that attention to herself which her case

requires. No attempts being made to relieve the distended breast of its secretion, the gland becomes hard and painful, and at length abscesses form in different situations. If the treatment is confined to the evacuation of matter by puncture, and to the application of fomentations and poultices, but little good is done. The former abscesses continue to discharge; fresh ones are constantly forming, and the woman at length sinks in a state of hectic. Means should be used to stop the secretion of milk, which has been going on all this time, and perpetuating the mischief. We have no better means of effecting this than by the administration of a hydragogue purgative. I am usually in the habit of prescribing the sulphate of magnesia in the compound infusion of roses, to which, when there is much hectic and debility, I add some quinine, and dilute sulphuric acid. The effect of this treatment is sometimes almost magical. I have known a woman, who for months had been suffering from a succession of mammary abscesses, begin to get well from the moment that the salt produced its liquid evacuations from the bowels; the secretion of milk ceased, and the purulent discharge diminished, a more adhesive inflammation being established in the place of these two actions.

Part xvii., p. 293.

Abscess in the Perineum.—Mr. B. Cooper gives the following case:—I was sent for to see a patient who was suffering from retention of urine, of which the symptoms were so urgent that I immediately attempted to pass a catheter; not succeeding, however, in relieving the patient, I proceeded to examine the perineum, where I discovered a tumor of considerable size; in this I made an incision, and a quantity of pus and urine was immediately evacuated. As the patient stated that he had been the subject of stricture for many years, I considered it better to open at once the membranous part of the urethra; I therefore passed a female catheter into the bladder, and, drawing off the urine, relieved the patient from the symptoms arising from the retention; I next passed a male catheter along the natural passage of the urethra, as a preliminary to the division of the stricture; to my great surprise, the instrument passed readily on, and when the female catheter was withdrawn, at once entered the bladder: this circumstance showed that if I had attempted to pass the male catheter before I divided the membranous portion of the urethra, I should have found the more formidable part of the operation to be altogether unnecessary. The experience I derived from this case has since often prevented me from cutting into the membranous part of the urethra, after opening an abscess in perineo, without first attempting to pass the male catheter along the natural course of the urethra; such a precaution is, indeed, rendered doubly necessary by the fact that abscesses in the perineum may result from external injury, without any other implication of the urethra or the canal than that arising from the mere pressure of accumulated matter, the evacuation of which immediately relieves the symptoms.

Part xix., p. 181.

Substitute for Tents in dressing Abscesses.—In place of introducing tents, which are not only painful, but give rise to other inconveniences, M. Nonat passes a crayon of nitrate of silver into the opening, to the depth of from $\frac{1}{4}$ to 1 centimetre, withdrawing it immediately. The pain caused by this is trifling and evanescent, and the eschar produced prevents the union of the walls of the trunk of the abscess. It is in abscess of the breast that this procedure has been found especially useful; the deepest

abscesses being thus brought to heal in seven or eight days. The cauterization has to be repeated every two or three days. *Part xx., p. 180.*

Pelvic Abscess.—The abscess must be opened where it points. If in the vagina, an incision may be made there; but if in the hypogastric region, adhesion of the two surfaces of the peritoneum must be obtained before opening the abscess. In order to effect this adhesion, apply a portion of *potassa fusa cum calce*, made into a paste with alcohol, to that part of the abdominal parietes where it is wished to make the opening. When, by the action of the caustic, after one or more applications, the seat of the fluctuation is nearly reached, an adhesion is shown to have taken place by the impossibility of moving the abdominal parietes over the tumor; then make an incision in the centre of the sore. Or, instead of using the caustic, make an incision through only a portion of the thickness of the abdominal parietes, and then apply linseed poultices; the pus will frequently find an exit through the sore. After the abscess is opened, use injections of tepid water, to remove fetid secretions, and to prevent the admission of air, by keeping the cavity full of liquid.

Part xx., p. 230.

Abscesses.—In opening abscesses, if the attenuated skin is of a circular form, so that when divided by the knife in any direction, it must leave broad thin flaps, apply caustic round the edge where the healthy and thin skin meet; and the whole of the latter being, as it were, included in a ring of eschar, will perish. This plan answers well in large buboes, especially in scrofulous subjects. If the abscess has opened spontaneously, and there is much unhealthy skin, and also unhealthy granular and cellular tissue below it, use the caustic at once, as all this has to be got rid of before a cure can be accomplished.

Part xxii., p. 343.

Pelvic Abscess.—Among the most important of the cases in which purulent collections form within the abdomen are those known as *pelvic abscesses*, in which inflammation of the cellular tissue of one or other part of the pelvis ends in suppuration. In all probability the disease is generally located in the cellular tissue only, and may originate in any part of the pelvis.

The prognosis of pelvic abscess following parturition is probably for the most part favorable. The patients often sink into hectic under the profuse discharge which follows, but as there is no persistent cause of irritation (as in psoas abscess, or those depending on foreign bodies), they generally rally as the abscess diminishes in size. The treatment should of course consist of the most liberal diet, combined with such tonics as may appear necessary. The abscess should be opened as soon as a tendency to point in any direction is perceived. The most favorable class are those, perhaps, in which the opening is into the vagina, as a free and depending channel of exit is then procured, while no risk from the contraction of the cicatrix afterward is encountered, as might be the case were the rectum the part selected.

Part xxx., p. 158.

Deep-Seated Abscesses.—The injection of deep-seated abscesses with tincture of iodine is coming into more favor in hospital practice. In two cases during the present month, in the analogous sacs of ovarian cysts, one by Dr. West, at St. Bartholomew's, and another at University College Hospital, iodine was used. In a third case of immense abscess of the loins

not lumbar abscess), Mr. Paget found the iodine injection very valuable. The rapidity with which the iodine is absorbed and spread over the system, and then eliminated by the kidneys, seems to prevent excessive local stimulation. In hydrocele, iodine is almost always used, also, as the danger of too much local inflammation by the old port wine injection is thus avoided.

Part xxxii., p. 198.

Abscesses in the Perineum.—Vide Art. "Perineum."

ACIDS AND ALKALIES.

Proportions for the saturation of.—In the application of this table it should be observed, that the articles adduced are those of the London Pharmacopœia of 1836, in their *pure state*.

Supposing the articles kept by chemists and druggists to be in a perfect state of purity, this table will be found intrinsically correct, and available for all ordinary purposes in compounding prescriptions wherein "quantum sufficit ad saturationem" is ordered.

ONE SCRUPLE.	LEMON JUICE.	CITRIC ACID.	TARTARIC ACID.
	Drachma.	Grains.	Grains.
Potassæ Bicarbonas.....	8 to 4	13·68	14·65
" Carbonas.....	3½ — 4½	16·76	17·95
Ammonias Sesquicarbonas.....	5 — 6	22·74	25·44
Sodæ Carbonas.....	3 — 3	9·72	10·41
" Sesquicarbonas.....	8½ — 4½	16·86	18·07

Part v., p. 82.

ACONITE.

Action and External Use of.—Dr. Eades laments that the distinction between sedatives and narcotics is not more clearly defined, and remarks that, from the terms sedative, anodyne, soporific, and narcotic, being indiscriminately used by authors, the object of their treatment, or the treatment itself, is frequently rendered obscure, if not doubtful. He then says:

"To prevent any misunderstanding of the action of this substance, so far as our knowledge goes, I am anxious to have it classified among the cerebro-spinants, or, 'those agents,' to use the words of Pereira, 'whose primary and specific effect is a disorder of one or more of the functions of the cerebro-spinal system. To this class, therefore, are referred all those substances which occasion sleep, insensibility, erroneous perceptions, judgments, and volitions, or delirium, stupor, or coma, paralysis, convulsions," etc.

The cerebro-spinants are subdivided according to the nerves, motor or sensitive, which they more particularly affect, or the systems upon which they more decidedly display their action. Thus Pereira places aconitum amongst those cerebro-spinants which cause paralysis of the nerves of sensation.

[With a view to test the correctness of this classification, Dr. E. made some experiments with aconitine upon animals, the results of which were "sufficient to show that aconitine acts as a paralyzer of the nerves of sensation, and does not cause stupor or convulsions; when the latter occur they take place a short time previous to death, and appear to be caused by a want of the circulation of the brain." The first case in which Dr. E. tried this remedy externally, was a "Mrs. H., of nervous temperament, married 6 years, had several miscarriages, caused by a morbid irritability of the sacral nerves." The form used was the tincture of the root as an embrocation with tincture belladonna—3ij. of each in ℥iv. of rose water.]

To have a couple of teaspoonfuls rubbed upon the sacrum, inguinal regions, and inside the thighs. In the course of a few minutes there was a complete suspension of pain. For five months she had every fourth week these attacks, and frequently in the interval sudden and severe excitement. It was such attacks as these which caused her former miscarriages, and after the sixth week of gestation, they always excited uterine pains with more or less of a "bearing down" sensation.

I found that the belladonna, when used alone, whether in the form of embrocation or a plaster, to the sacrum, gave no relief. At the expiration of the fifth month these pains returned no more; she arrived to her full time and became the mother of a strong and healthy child.

The second was a case of neuralgic attacks in the gums, jaws, and cheeks. As the patient was disposed to dyspepsia, these were supposed to be merely secondary, and the ordinary treatment was tried without effect. The tinct. aconite lotion, 3j. to 3j., was then ordered as a gargle; and also to be applied externally to the cheeks; after a few applications, this treatment succeeded perfectly, the pains not having returned for eight months.

Dr. Eades has received accounts of cases where it has been tried, and one is mentioned which was communicated to him by a medical friend, of apparently pure neuralgic pain over the left eyebrow, "which occasionally extended over the same side of the forehead and temple, and also down as far as the zygomatic arch."

[After a little aperient medicine had been given, bark was tried, together with leeches over the orbit, with hardly any good effect; the tinct. aconite was then tried per se, and the pain very soon yielded.]

Of the preparations of aconite, the tincture of the root and the alcoholic extract are the most to be depended upon. The preparations, as ordinarily met with, are not to be relied upon. In general one may form a pretty correct opinion as to the probable strength of the preparation, by the tingling sensation it produces upon the lips, and the degree and duration of numbness which follows. Those preparations which do not produce both these effects I have found to be almost inert.

Mr. E. concludes by saying:

From my own observations, I would thus sum up the most remarkable symptoms, as exhibited by animals; weakness, staggering, gradually increasing insensibility of the surface, slowly increasing weakness of the voluntary muscles, ending perhaps in paralysis, great languor of the pulse, more or less blindness, and convulsive twitchings before death.

Part xi., p. 10.

Physiological and Medicinal Properties of Aconite.—The practical

inferences which Dr. Fleming deduces from a consideration of the actions of aconite on the circulation, are as follows: 1. That it is a powerful antiphlogistic. 2. That it is calculated to be of great value in all cases where there is an inordinate activity of the circulation. 3. That it is contra-indicated, when there is obvious mechanical impediment to the passage of the blood, particularly through the heart or lungs. It is requisite, therefore, in every case, to ascertain that no such obstruction exists before commencing its use. 4. That it is contra-indicated whenever there is irritability of the circulation, with great diminution of power, such as occurs after severe venous hemorrhage.

The diseases in which aconite is said by Dr. Fleming to be useful, are neuralgia in various forms, hemicrania, angina pectoris, cephalalgia, general pains of fever, certain diseases of the heart, acute rheumatism, lumbago, erysipelas, cancer, pruritus, and hysterical spasmodic asthma. Those in which its use is most satisfactorily established, are neuralgia and rheumatism. It is decidedly objectionable in several of the above-named affections, particularly in the general pains of the typhus and other fevers, where the *vis vitæ* is at a low ebb.

Neuralgia of the Thoracic and Intercostal Nerves—Spinal Irritation.—I have found the topical application of the tincture extremely successful in the treatment of the neuralgic pains, so frequently complained of by females, as occurring about the seventh, eighth, and ninth ribs of the left side, as well as of spinal irritation, both when coexisting with, and independent of, these pains.

Neuralgia of the Extremities.—In a case of crural neuralgia of the right side, where the pain was chiefly seated in a circumscribed spot on the inside of the patella, the external application of the tincture was, in eight days, followed by a complete cure. The disease, which occurred in a female of thirty years of age, was of three years' standing, and the part had been frequently leeches and blistered without effect—the potential cautery having been the only application which had afforded any relief.

Dr. Cormack has communicated to me a case of severe neuralgia of the right hand, which was at first treated successfully by the internal use of the tincture. The pain afterward returned in two of the fingers, to a slight extent; but the patient could not be prevailed upon to resume the remedy, in consequence of its having formerly produced some dimness of vision. Two cases of neuralgia of the fingers, in which the aconite was had recourse to with success, are noticed in the table of neuralgic cases.

As far as my own experience goes, I believe it will be found most useful in those cases of sciatica, which appear to owe their origin to a congested or inflammatory condition of the nerve.

Aconite was recommended in acute rheumatism by Dr. Störck, and various other physicians have since followed the practice.

The improvement following the administration of aconite is often very speedy, some alleviation of the pains being occasionally experienced in the course of an hour after the first dose has been taken, while there are few cases in which decided relief, with abatement of the redness, tension, and tenderness, is not obtained in a few hours. A longer period seems to be required to disperse the inflammation in the smaller joints than in the larger ones. Aconite not only effects a cure in a shorter period than any

other mode of treatment, but appears to possess the great negative advantage of not increasing the liability to extension of the disease to the membranes of the heart. Indeed, it seems rather to protect the patient from that dangerous complication. It may be thought that as aconite weakens the heart, it is probable that it will predispose that organ to suffer in the same way as blood-letting; but this distinction must be borne in mind, that aconite acts as a pure sedative to the vascular and nervous systems, whereas blood-letting—although it produces a similar action when practised to a moderate extent—when performed largely and repeatedly, has a peculiar effect in increasing the irritability of the heart. In a strong and healthy subject, with high inflammatory fever, a free blood-letting, practised at the outset, will not only be of service in affording a more rapid relief to the patient's sufferings, but will place his system in a more favorable condition for the action of aconite, which, if properly administered, will prevent reaction, and remove the necessity of abstracting more blood.

Chronic Rheumatism.—Aconite may be used both internally and externally in this disease. The internal administration seems to be preferable, in what has been termed the active chronic rheumatism: that variety which is, perhaps, properly speaking, only a very mild form of the acute rheumatism, being attended with some heat and swelling of the part affected, and slight constitutional disturbance. On the other hand, I would recommend the external application of the tincture in what is termed the passive chronic rheumatism, "characterized rather by coldness and stiffness of the painful joints, with entire absence of constitutional fever." In every case, however, should the mode of treatment adopted fail to afford relief, the other should be had recourse to; while it is frequently of service to combine the internal and external use of the remedy.

Administration of Aconite.—The alcoholic tincture of the root, prepared according to the following formula, is the best preparation of the drug for internal administration. It may be given simply with water, or it may be prescribed along with antimony, opium, or other remedies.

Tinctura Aconiti.—Take of root of *A. napellus*, carefully dried, and finely powdered, sixteen ounces, troy; rectified spirits, sixteen fluid ounces; macerate for four days; then pack into percolator; add rectified spirits until twenty-four ounces of tincture are obtained.

It is beautifully transparent, of the color of sherry wine, and the taste is slightly bitter. As an anodyne, anti-neuralgic and calmative, five minims ought to be given at first, three times daily, to be increased daily to the extent of one minim each dose.

The best method of administering the remedy in diseases of the heart, is to give it in smaller doses than those recommended for its use as an anodyne, but more frequently repeated, as three or four minims five times daily. Sickness may be avoided or checked by an effervescing draught, administered with, or immediately after, the dose.

External Use.—The aconitina may be applied externally, either in the form of solution in alcohol, in the proportion of one or more grains to the drachm, or of ointment made in the following manner:

R. Aconitine, gr. xvi.; spir. rectif. m. xvi., tere optime. Deinde adde axungie, ʒj., ut fiat unguentum.

If, as occasionally happens, this ointment, after two or three applica-

tions, fail to produce its ordinary effects, the proportion of aconitina must be increased to three, four, or even eight, grains to the drachm. It is much to be regretted that the difficulty of preparing the alkaloid, and its consequent high price, should prevent its more general use. A preparation of inferior quality, or, as is frequently the case, totally inert, is very commonly substituted for it in the shops—a circumstance which fully accounts for the low estimation in which it is held by many who profess to have tried it. The tincture, however, will be found an excellent substitute. One or more drachms of it are to be rubbed over the affected part three times daily, the friction being continued at each time for a quarter of an hour, or, indeed, until the topical effects of the drug are fully developed. It is hardly necessary to add, that, when there is any abrasion of the skin, the external application of either of these preparations may be attended with danger.

Part xii., p. 37.

Dr. Fleming's Tincture of.—Recommended in cases of tetanus. It acts mainly on the spinal cord, inducing muscular paralysis, and affecting the brain but little, if at all.

Part xxxix., p. 70.

AIR.

Air—Exclusion of, in the Treatment of certain Diseases.—A favorite application in France, in cases of internal inflammation, is a large poultice. This is very useful, for example, in pleuritis and peritonitis. On this mode of treatment Dr. Marshall Hall makes the following remarks:

It is probably by the exclusion of the atmospheric air that other remedies for inflammatory diseases act; the various plasters, the nitrate of silver, even blisters, have this effect. I do not, however, mean to insinuate that they have no other. Cataplasms may further act by their warmth and moisture. The nitrate of silver possesses some extraordinary power over the actions which constitute or coincide with inflammation. But, certainly, mere adhesive plasters have an efficacy in cases of chronic chest affection, in lumbago, sciatica, and other forms of rheumatism, in neuralgia, and even of scirrhus, which cannot be easily explained.

One of my patients, a martyr to extensive sciatica, was desired to envelop the limb in adhesive plaster. He was a joiner, and an ingenious man. He prepared the common stocking material with glue, dissolved in the proportion of one ounce to two pints of water, and had it spread over, when dry, with galbanum plaster, and if this exuded it was dusted with flour. By the steady application of this plaster his severe rheumatism was cured.

I was once informed by a celebrated physician that he had prescribed adhesive plaster to be applied over a scirrhus tumor of the mamma. It remained adherent for years, and the disease remained stationary. The plaster then separated and from that period the disease pursued its devastating progress.

Certain modes of the treatment of burnings consist in excluding the influence of the atmospheric air.

Some affections of the face are remedied by applying a layer of gela-

tine. Isinglass is dissolved in water, and the solution is applied with a camel's-hair pencil and allowed to dry.

Part x., p. 94.

ALBUMEN.

Detection of Albumen in Urine.—In cases of albuminous urine, it is necessary to bear in mind the recent investigations of Dr. Rees. The coagulation of urine by boiling, has hitherto been considered a sufficient proof of the presence of albumen; but this is not the case; urine may contain not only the albumen but also an alkali, and in this case boiling will not coagulate it. Albumen, therefore, may be present and not detected, according to the hitherto received mode of detection; it is necessary, according to Dr. Rees, to add nitric acid, in which case, a copious precipitate will be produced, if an alkali be present. Dr. Rees asserts, that the knowledge of the acid or alkaline condition of urine cannot assist us in determining whether or not it contains albumen, by applying heat alone, if a *positive* result be obtained, "for the coagulum may be caused by the earthy phosphates, whether the urine be alkaline or acid; but the case is different when the result is *negative*, since acid urine never prevents the precipitation of albumen by heat, though alkaline urine may, and therefore a specimen, if shown to be acid, and not coagulable by heat, may safely be declared free from albumen." But nitric acid may also mislead the practitioner, unless perfectly conversant with the changes produced by other substances; thus, when the lithates exist in the urine in excess, a mineral acid will cause a deposit of lithic acid; but this is generally of a brownish red color, and very different to that of albumen produced by nitric acid.

Part iii., p. 53.

Circumstances influencing the Coagulation of Albumen.—Mr. Badley remarks as follows: A short time since some urine was left me for examination, containing pus. It was filtered, and heat applied to the clear fluid, which was acid, to ascertain the quantity of albumen it contained; but it was boiled without effect. The non-occurrence of coagulation being unusual under such conditions, I added some nitric acid, which immediately caused a precipitate that became flocculent by heat. It is stated by Dr. Rees (whose researches in this department have deservedly given much authority to his name), that "acid urine never prevents the precipitation of albumen by heat," and that "a specimen shown to be acid, and not coagulable by heat, may safely be declared free from albumen." Here, however, was acid urine containing a considerable quantity of what I could not but consider albumen, yet unaffected by a boiling temperature, and therefore quite at variance with the above statement. On inquiry, the only thing I ascertained was, that some nitric acid had been previously poured into it. These two reagents, heat and nitric acid, are generally considered not only indispensable in examining urine for albumen, but when used together, certain in their indications. The acid is thought by some to aid the effect of heat; its tendency is, to a certain extent, however, to oppose it. The one is undoubtedly essential to correct the fallacies of the other; but care should be taken that what is intended to correct is not itself a cause of error. Dr. Watson states that nitric acid "will

detect albumen when the tested urine is alkaline;" this is well known, "and by restoring its acidity, will make the albumen discoverable by the test of heat." This, however, is a condition which will as effectually prevent the coagulation by heat as the previous alkalinity; a drop beyond what would neutralize the alkali being sufficient for such a result. When the urine, therefore, is alkaline, the acid should always be employed as the precipitant, and never with the intention of "restoring acidity."

Part xii., p. 115.

Singular property of Albumen.—The following is valuable, as pointing out one of the sources of fallacy which may occur in testing for albuminous urine.

Professor Wunderlich remarked that any albuminous fluid loses the property of coagulating by heat, when the free alkali contained in it is neutralized by a few drops of nitric or muriatic acid. Even if a slight turbidness should result from the addition of the acid, this disappears on heating the liquid. *Remarks.*—We have observed a similar effect on the addition of acetic acid to an albuminous liquid: but it appeared to depend on the quantity of albumen present. It was long ago shown by Magendie, that when acetic acid was added to serum, the mixture might be heated without coagulation taking place. It merely became opaline; and on cooling, if not too dilute, it became solid; on again heating it, liquid.

Part xii., p. 115.

New Test for Albumen.—The highly acid liquid obtained by dissolving mercury in its own weight of nitric acid, constitutes an extremely delicate reagent for albumen and albuminous compounds. This mercurial solution communicates to albuminous substances an intensely red color, by means of which a very minute proportion of albumen in water may be detected.

To give an idea of the delicacy of this reagent, and to show its applicability to the study of vegetable organization, it may be stated that starch and gum acquire by its action a very distinct rose tint. Urine almost always becomes colored of a rose tint after the nitro-mercurial solution has been mixed with it, and the mixture has been warmed. The albumen of the blood, that of serous effusions, of plants and fibrin, casein, gluten, legumin, silk, wool, feathers, horn, epidermis, gelatin, chondrin and protein, are equally affected.

Protein rendered soluble by the prolonged action of an alkaline ley, or by sulphuric acid, is also colored red, but no precipitate is thrown down.

This mercurial solution is most readily prepared by dissolving mercury in its weight of nitric acid (1.4) in the cold. When reaction has ceased, a gentle heat may be applied to facilitate the solution of metal. When the solution is complete, the liquid is to be diluted with two parts of distilled water by measure. After some hours the liquid is to be decanted from any mixed crystals of nitrite and nitrate of mercury, that may subside.

One or two drops of the test liquid are sufficient for the detection of albumen. Albumen has been detected in the liquid of cholera, when nitric acid and heat have failed to demonstrate its presence.

This reagent acts on albuminous substances at low temperatures, but not so completely as at a temperature of from 140° to 150° Fah.

Part xx., p. 96.

ALBUMINURIA.—(Vide "Kidney Affections.")

Large purgative doses of cream of tartar, given two or three times a week, in cases of this almost invariably fatal disease, were found to afford more relief to the uneasy sensations of the patient than any other remedy.

Suggested to combine some diuretic, especially the infusion of diosma combined with sweet spirits nitre and tincture of squill. The tincture cantharidis was not found serviceable.

There seems to be a certain analogy between various organic diseases of certain viscera, as tubercle in the lungs, cirrhosis of the liver, granular degeneration of the kidney, and opacity and thickening of the valves and membrane of the heart, all of which are regarded as the result of a deposit of lymph of an imperfectly organizable character, such lymph showing a strong tendency to induration and contraction subsequently to its deposition. Hence we may suspect that when one of these diseases is present, we will find analogous affections in the other organs which are disposed to receive these depositions.

And in the cases detailed, granular disease of the kidney was found to be connected with tubercle of the lungs, and with a cirrhotic state of the liver; also with diseased valves of the heart, and with tubercular deposit on the peritoneum. When the proper texture of the kidneys is thus supplanted by a deposit of lymph of an imperfect character, we can easily see how their functions may be changed. If these organs possess the property which Dr. Prout assigns to them, of exerting a disorganizing influence on the materials to be discharged from them, this morbid deposit will so alter their powers that the fluid part of the blood will be poured out as through a mere filter, retaining more or less of its albuminous character.

Part ix., p. 9.

Treatment of Albuminuria.—The treatment of a case of ordinary albuminuria will depend in some measure on its complications—especially with cardiac disease. If it be an acute case, in which there is reason to suspect an inflammatory and congested state of the kidneys, the first step will often be to diminish the quantity of unhealthy blood by bleeding; this should be accompanied or followed by hydragogue purgatives. Some practitioners prefer giving large doses of bitartrate of potass, as half an ounce or an ounce every morning; others prefer elaterium when the stomach will bear it. Some prefer acting entirely on the alimentary canal, for the purpose of relieving the renal congestion and diminishing the quantity of liquid in the system, while others combine the use of diuretics of a more or less powerful nature. This latter mode, however, can only be admissible when the acute stage of inflammation has subsided, and when their use can have no irritating effect on the parts. The combination of the infusion of digitalis, as pointed out in Dr. Munk's paper, may probably be useful in all stages of the disorder, and especially as cardiac disease is so frequent a complication.

Part x., p. 74.

Compression of the Renal Vessels as a cause of Albuminuria.—Mr. George Robinson, from experiments which he instituted to ascertain the cause of the appearance of albumen in the urine, has found that "obstruction to the return of blood through the renal vein," give rise to the escape into the urinary passages, not only of liquid albumen and blood,

but also of coagulating lymph or fibrin. Similar results were obtained when an *increased* quantity of blood was directed to one or both kidneys, no obstruction being offered to its return. In the first class of experiments, seven in number, a ligature was tightly applied to the renal vein; in one case the urine, at the end of six minutes, was found highly albuminous, with traces of fibrin, whilst in another, after an hour's compression, it was merely bloody. In four out of the seven, however, albumen was present. From these experiments Mr. R. infers that the degree of obstruction is only one of the conditions necessary for the exudation of the more viscid parts of the blood, and that various kinds of effusion may result from the same amount of obstruction. He explains these different degrees of exudation to be dependent upon the amount of arterial impulse at the moment of tying the ligature, and says he observed throughout that in these animals which recovered most speedily from the operation, the effects of compression were manifested in the most intense degree. In the second class of experiments, increased determination of blood to one or both kidneys was effected in some cases by the removal of one of the kidneys, in others by tying the aorta below the spot where the renal arteries arise, and this was found much the most effectual way. In four experiments the urine contained more or less albumen.

Mr. Robinson considers that his experiments prove—

1. That simple compression of the blood in its smaller vessels, will, in a direct ratio to the degree of intensity of that compression, cause the exudation of an albuminous fluid, of coagulating lymph, or the extravasation of blood. Its immediate effects, therefore, precisely resemble those of inflammation; and as it is well ascertained that both the essential causes of undue compression (*viz.*, an obstruction or impediment to the flow of blood through the vessels of the inflamed part, and excessive action of the heart) coexist in that disease, it seems but reasonable to infer that the primary effects of inflammation, being identical with those of undue compression of the blood, are the mere consequences of that physical cause.

2. That there is no relation between the composition of the effused matters and the extent of the dilatation of the coats of the vessels, as measured by the quantity of blood they contain.

These experiments of Mr. Robinson seem, therefore, to offer an easy explanation of the existence of albuminous urine in pregnant women; and in future it would be well for medical men when they meet with cases of oedema of the face, eyelids, etc., or disordered states of the kidneys, to examine minutely for albumen, and where this is present to be on their guard for fear of puerperal convulsions. These will probably be found to be more severe when the urine has been albuminous during pregnancy, than when it only becomes so during labor. In this latter case the convulsions will generally be milder, and the urine will be albuminous for a shorter time than in the former case. In the sthenic form we must have recourse to active depletion, tartarized antimony and purgatives; taking care to interfere as little as possible with the os uteri. *Part xi., p. 68.*

Albuminuria treated by Vapor-Baths and Extract of Rhatany.—The patient had been the subject of anasarca for fifteen years, with an exception of a short interval, when the symptoms had been relieved by warm baths, aromatic fumigations and iodide of potassium. In the beginning of last December he presented the following symptoms:

The legs and scrotum were considerably infiltrated, and ascites was present; a general sensation of lassitude, and pain in one, sometimes both sides of the abdomen, were complained of; the bowels were confined, the appetite preserved, and frequent paroxysms of cough were observed; the urine was pale, slightly acid, abundant, and contained a large quantity of albumen—coagulable by heat and nitric acid. Every day ʒss. of extract of rhatany was exhibited in a mixture; vapor baths were ordered, and low diet. Under the influence of this treatment a gradual amelioration occurred, and on the 10th of January the urine contained no more albumen. On the 12th, the patient left the hospital, if not completely cured of his renal disease, at least cured of the symptoms which he had labored under, and which are generally looked upon as characteristic of granular disease of the kidney.

Part xv., p. 135.

Albuminuria—Chronic.—Give elaterium as a purgative; it will relieve the dyspnoea and assist the action of the diaphoretics. Insert a seton or an issue, but do not let the discharge be too profuse. When all inflammatory symptoms have subsided, give iron; either the *mist. ferri comp.*, or the ammonia citrate, taken in soda or Seltzer water.

[Or give pulv. potass. bitart. ʒss.; pulv. jalapæ ʒss., in a tumbler of water every morning, or every other morning, counteracting the prostrating effects by some gentle stimulant in a little weak whisky and water, or diluted chloric ether.]

Part xvi., p. 180.

Indications of Treatment—Are, 1st, to remove the exciting and predisposing causes where they exist, such as intemperance, and residence in an unwholesome atmosphere; 2d, to oxygenize the blood by active exercise in the country and in the open air; 3d, to avoid fatty and all other non-nitrogenous articles of food; 4th, to administer alkalies in free doses, which, by their action on the animal fats, will probably render their elimination more easy of accomplishment; and, 5th, to administer purgatives, so as to keep up a tolerably free action of the bowels. *Part xviii., p. 137.*

Use of Purgatives and Tonics.—Speaking of the employment of hydragogue purgatives in the treatment of this disease, Dr. Heaton observes:

I find none more convenient than croton oil, which produces copious evacuations, and with less sickness and discomfort than are caused by elaterium. Some of the neutral salines, as sulphate of potash, are likewise useful for this purpose; these should be given in rather a concentrated solution, which then determines an endosmosis of the watery part of the blood into the intestine from the blood-vessels, which, thus deprived of their natural tension, become actively absorbent of the dropsical effusion which they had before allowed to escape. But if the saline be given much diluted, or, what is in effect the same, if followed by much diluent drink, it then enters the blood and acts upon the kidneys. Cream of tartar is likewise useful as a hydragogue purgative of mild operation, when given in full doses, and what enters the blood acts favorably upon the kidneys.

[When there are no febrile symptoms, and it is required to give tonics to improve the general health, Dr. Heaton says:]

In this disease, no medicines are equal to the preparations of iron, and of these I know none so suitable as the tincture of the muriate, which combines diuretic with its chalybeate properties. In many cases I have found most marked benefit from the use of this remedy, both to the gene-

ral health of the patients, and in producing a more healthy condition of the urine, which is the best proof of actual improvement. The effect of this disease upon the blood is very marked and characteristic; besides the accumulation in the blood, of urea which should be excreted by the kidneys, and the diminished proportion of albumen in the serum, there is a very great reduction in the amount of red globules which it contains. This is evident in the pale leucophlegmatic appearance of those who have been long the subject of albuminuria; and we know that no medicine has an effect equal to chalybeate preparations, in restoring the red globules to blood in which they are deficient.

Part xix., p. 110.

Use of Gallic Acid in Albuminuria.—Give gallic acid in doses of eight or ten grains every six hours, in some convenient vehicle; not neglecting the use of other remedies to relieve occasional symptoms.

Part xxi., p. 173.

Albuminuria.—The presence of pus in the urine may obscure the diagnosis in this disease. The pus corpuscles float in a fluid containing albumen; it thus becomes mixed with the urine and renders it albuminous. A good test for pus is the addition of liq. potassie, by which it is converted into a mucous fluid, and when poured from a vessel exhibits its glairy character. We must endeavor to obtain the urine free from pus, and if the urine then ceases to be albuminous, it is evident it has no connection with Bright's disease, and *vice versa*. If, then, albumen exists in the urine independently of pus and blood, and if we have excluded puerperal fever, gestation and cholera, as possible causes, we may conclude the patient to be subject to one of the forms of Bright's disease. Now, as owing to the drain of albumen, there is an excess of water in the blood, we must endeavor to render the specific gravity as nearly proper as possible. To promote this, experience has decided upon the use of hydragogue cathartics, vapor baths and iron. Iron should not be given in the active stages of the disease. As regards the use of iron in anemia generally, we are advised to persevere with its use, notwithstanding the frequent complaints of the patient that it does not agree with him. Abstract, then, the excess of water from the blood by saline purges, and persevere in introducing iron into the system.

Part xxiv., p. 136.

Albuminuria.—Albumen is to be detected by nitric acid and heat. Albumen may be present in cholera, puerperal fever, pyelitis, gestation, or inflammation of urinary mucous membranes, but especially in

1st. *Acute Desquamative Nephritis.*—Here is inflammation or congestion characterized by fibrinous casts with blood discs, nuclei, and epithelial cells, united by fibrinous matter.

2d. *Chronic Desquamative Nephritis.*—A chronic form of last. By long-continued shedding of epithelium with the urine, in a more or less disintegrated state.

3d. *Waxy Degeneration of Kidney.*—By the discharge of waxy casts in urine, varying in size. All the cases of this kind, which Dr. Johnson has seen, have recovered.

4th. *Non-desquamative Disease.*—The elimination of some poison, as scarlet fever. There is congestion or inflammation and escape of serum, but no exfoliation of epithelium.

5th. *Fatty Degeneration.*—Large quantities of oil globules, mixed with

epithelial cells and tube casts. Oil cells are known by their rounded, uniform shape, and by their broad, black margins, produced by their strong refractive power.

Part xxvii., p. 92.

Albuminuria.—In that form which occurs after scarlet fever, it will generally disappear by the rigid adherence to a milk diet; if this should not suffice, urea given in doses of one-third of a grain, occasions an abundant secretion of urine and rapid disappearance of the dropsy.

Part xxxiv., p. 118.

Albuminuria.—The happiest effects frequently follow the treatment of cases of albuminuria, early in the disease, by iron. It acts not solely by imparting red corpuscles to the blood, but by counteracting the commencing deterioration of the liquor sanguinis, which constitutes the very essence of the disease. It should be given for a long period, extending over many months, and combined with nutritious diet, and occasional use of jalap purges. A vapor bath may be given once or twice a week, and flannel worn next the skin. A case is recorded in which, under the use of iron, anasarca entirely disappeared; the urine became perfectly clear, and nine years after contained no albumen, though previously loaded with albumen.

Part xxxviii., p. 112.

Albuminuria—Scarlatinal.—As the renal disorder which succeeds to scarlet fever is identical with the acute form of morbus Brightii, it follows that the principles on which these cases should be treated must be the same. They are summed up by Dr. Basham as follows: lessen the watery or dropsical state of the blood, and diminish the local blood stasis in the kidneys. The first is obtained by acting briskly on the intestinal tract of mucous surface, by which a large amount of fluid is rapidly eliminated from the system. The second object is secured by calling into activity the functions of the skin by diaphoretics, warm clothing, and warm, or hot-air baths. The functions of the skin are vicarious of those of the kidney, and whatever augments the first, lessens the activity of the latter. The congestion of the kidneys is further alleviated by dry cupping, and occasionally by abstracting blood, by cupping, from the loins; but the cases are exceptional which will require the abstraction of blood. If these objects can be successfully attained—indicated by the disappearance of the dropsy and the absence of blood from the urine—no time should be lost in placing the organism in a condition to regain those qualities and powers, the loss of which are most plainly manifested by the impoverished state of the blood. Amongst medicinal remedies, the ferruginous are the most essential; and amongst these, the tincture of sesquichloride of iron is the most valuable and efficacious. But chalybeates are useless without a well-ordered diet. Nutrition must, therefore, be promoted, and it may be aided by a limited allowance of wine. Our best-directed efforts are, however, often frustrated by the intensity of the disease and rapidity of its progress.

Part xxxix., p. 20.

Albuminuria in Cases of Diphtherite.—Dr. Wade urges the necessity of making (morning and evening) an examination of the urine in cases of diphtherite, whatever their degree of severity. If albuminuria be present, the prognosis should be carefully guarded, though not necessarily of the most unfavorable character. *Vide, Art. "Diphtheritis."*

Part xxxix., p. 32.

A L O E S .

Extract of Aloes—How to preserve Pills of.—Extract of aloes readily absorbs moisture from the atmosphere, which renders it difficult to preserve in the form of pills. This inconvenience may be perfectly avoided, according to M. Rottscher, by adding a fourth part of carbonate of magnesia.

Part xi., p. 102.

A L U M .

Observations on the Use of Alum.—[Sir James Murray thinks that the undoubtedly useful effects of alum as a remedy have been generally in a greater measure neutralized by the state in which it has been employed, i. e., in solution in water, or in astringent infusions or decoctions which it precipitates. He says:]

To obviate these mal-administrations, I have long been in the habit of prescribing *alum* in substance, but in such state as to prevent its too sudden action on the tender tissue. I always order this medicine to be reduced to an *impalpable powder*, and to be mixed in molasses, as an electuary. In this way, the remedy comes by slow gradations to constringe the relaxed fibres, and does not display all its action at once, like the ordinary solutions; nor does it irritate the tunics or excite the bowels like *alum* in powder.

When given in the state of electuary, in doses of about ten or twelve grains, three or four times daily, it seldom if ever failed to cure that obstinate disease, which I elsewhere described as *catarrh of the stomach*. I will only give a short abstract of one case out of many others.

The patient was a lady. Formerly she vomited daily a great quantity of glairy viscid mucus. I have seen basins of it so viscid as to resemble the spawn of frogs. The lady suffered many years, whilst no remedy succeeded. The ropy mucus brought up was so albuminous, that reflecting upon the action of acidulous alum on albumen itself, I determined to give alum a fair trial. She had the electuary well made up.

In this case, it was necessary to prevent constipation, and therefore an equal quantity of impalpable supertartrate of potass was combined with the alum, and also a little ginger, to obviate flatulence. This combination was most successful in this and many other cases, both of *catarrh of the stomach* and also of the bladder, and other mucous cavities. Whether it may aid in preventing relaxation of the bowels, antecedent to cholera, it is probable there may be opportunities enough to determine.

There is another method of using alum as a *gargle*, which far surpasses the usual applications. All gargles are hitherto taken into the mouth, and reverberated against the palate, but I found that alum, blended into an impalpable paste with honey or molasses, and then diluted with distilled water, forms an invaluable gargle, not only as a constringing lotion, diminishing the diameter of enlarged vessels, but also constricting turgid and relaxed glands and tunics.

I noticed that by drawing the gargle here recommended into the throat, not through the mouth, but through one or both nostrils, the progress of cure was remarkable. There are untoward secretions of mucus, and sometimes an injected, relaxed, and turgid state of the coat and vessels of the back nasal passages; these troublesome conditions extend down the fauces and cause sore throats, with inflamed appearances over the glands and entire surfaces. These cannot be removed by gargles applied through the mouth, but if appropriate applications of alum, honey, and rose water, be drawn into the palate through the *nose*, the *source* of the irritation is healed, and the continuous surfaces soon partake of the same salutary influence.

Part xix., p. 314.

AMENORRHŒA.

Treatment by Electricity—Having removed the accumulations, often present in the bowels, and employed other means for the improvement of the general health of the patient, as exercise and tonics, a few electric shocks will usually restore menstruation.

The mode of applying the electric shocks is the following: Let the patient be placed on a chair or stool; press the brass knob of a director against the sacrum; and if the stays be loosened, so that only the linen intervenes between the latter and the knob, no further exposure is necessary. A second director, furnished with a chain connected with the outside of an electric jar, is passed by the female attendant under the patient's dress, and the knob pressed against the pubes. The jar is then charged, and its ball touched by a third director, connected with the one held against the sacrum by means of a chain. The shock thus passes through the patient's pelvis, and should be repeated ten or a dozen times. The jar employed should hold about a quart, and be about half charged.

Part iii., p. 26.

Tincture of Muriate of Iron—Suggested in certain cases of amenorrhœa, attended with leucorrhœa. *Vide* Art. "Hæmaturia."

Part iii. p. 31.

Chloride of Silver—Is recommended in doses sufficiently large to produce the alterative and tonic action of silver. From 12 to 30 grains daily may be given in the form of pills. The catamenia, suspended for years, have, without any adjuvant treatment, returned after its free exhibition for two or three weeks.

Part iv., p. 19.

Leeches to the Knee.—The application of leeches to the internal surface of the knee-joints, suggested to promote the menstrual discharge.

Part v., p. 61.

Emmenagogue Remedies—May be employed when the health is so improved, in cases where amenorrhœa arises from chlorosis, that there is less pallor, with regularity of the bowels and more, and better blood. The preparations of iron are indicated in combination with such other remedies, as each particular case demands. *Vide* "Chlorosis."

Part vi., p. 79.

Amenorrhœa, combined with Epilepsy.—*Vide* Art. "Emmenagogues."

Part vi. p. 80.

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Electro-Magnetism in Suppressed Menstruation.—Dr Collins gives the following case: A female, æt. 35, unmarried, rather delicate constitution; her menses were stopped by taking cold, some seven months before I first saw her. I tried all the usual remedies described in such cases, but I did not succeed in bringing about the desired effect. I had been using the electro-magnetic machine in some other cases with the happiest effects; and I therefore was induced to use it in this case, in which it succeeded most perfectly. I applied the buttons connected with the machine over the region of the womb, holding one on the lumbar region of the spine, and the other in front over the pubic region; using the negative and positive wires alternately to the spine and abdomen. I continued the remedy five days, from five to ten minutes each day, when her menses were fully reestablished.

Part xi., p. 230.

Iodide of Potassium in Suppressio Mensium.—The employment of iodide of potassium as an emmenagogue, after the failure of our ordinary and well-known remedies, was first recommended by Mr. Pinching, of Dublin. Dr. Aldridge having had frequent opportunities of confirming its value in such cases, points out the conditions under which we may expect benefit from its use. These are where the absence of the catamenial discharge is dependent on uterine irritation, whether from exposure to cold, mental emotion, or other causes, and accompanied by pain in the loins, aching of the head, palpitations, etc. The treatment most serviceable in these cases is confirmatory of the inflammatory nature of the disease, bloodletting being a necessary preliminary to the use of actual emmenagogues. In continuation, Dr. A. says:

Now, these are the cases in which iodide of potassium will be found serviceable. Just as tartar emetic acts in pneumonia, and as calomel in iritis, does hydriodate of potash subdue the low and nearly latent metritis upon which this form of amenorrhœa depends. Like the medicines alluded to, the contra-stimulant efficacy of the hydriodate will be increased by previous depletion. These means of themselves are frequently sufficient to restore the menstrual secretion, when the suppression has been recent, in a young, robust girl. If they do not at once succeed in restoring the secretion, the employment of drastic purgatives, blisters to the sacrum, or, what I prefer to either, an electrical current from the lumbar spine to the pubis, will be, in general, much more successful, in consequence of the previous treatment. The dose in which I have been in the habit of exhibiting the hydriodate, has been that of ten grains three times a day; and I have never continued it for more than four or five days. I may add the caution, never to treat amenorrhœa unless the general symptoms of suppression be present. In cases of chlorosis, it is the diseased state of the blood you have to remedy; in morbus cordis and phthisis, your treatment must always be subordinate to the principal disease; and in amenorrhœa from uterine irritation, the remote symptoms of the head and chest are always sufficiently marked. If there be not chlorosis, phthisis, heart disease, or vicarious hemorrhage, and if the menses be suppressed without oppression of breathing, vertigo, and drowsiness, the chances are that the patient is pregnant. These chances will of course be increased if there be morning sickness, etc.; but the existence of the ordinary symptoms of incipient pregnancy are very generally known, and will be sometimes concealed. Cupping, electricity, and aloetic purgatives

in commencing pregnancy, are means not calculated to increase a physician's reputation. *Part xii., p. 295.*

Tincture of Water-Pepper in Amenorrhœa.—Dr. Eberle states that he has found no remedy so effectual in the cure of amenorrhœa as the tincture of water-pepper. Dr. T. L. Ogier says, that he knows no medicine that has a more decided action on the uterus in producing the menstrual discharge. The preparation used by Dr. O. was a strong tincture made from the stem, leaves, and flowers; but he thinks that the active principle of the plant resides chiefly in the leaves. The dose was a teaspoonful of the tincture three times a day in a little sweetened water. *Part xiv., p. 316.*

Amenorrhœa.—On the day of the menstrual period give three pills thrice a day, each containing two-thirds of a gr. of aloes, ergot of rye, and rue; apply four or five leeches to the vulva, and afterward a vapor bath. Repeat these for four days at every menstrual period, increasing the number of pills. If the menstrual period is not known, begin upon any convenient day, and repeat the treatment in a month.

Give extract of chenopodium olidum, gr. v.-x. night and morning for a fortnight before the period. *Part xv., p. 323.*

Electricity in Amenorrhœa.—In electricity, says Dr. G. Bird, we possess the only really direct emmenagogue which the experience of our profession has furnished us with. I do not think I have ever known it fail to excite menstruation where the uterus was capable of performing this function. Disappointment will, however, most certainly result if we have recourse to electricity merely because a girl does not menstruate; and we must never lose sight of the fact that, after all, the large majority of cases of amenorrhœa depend upon an anæmic condition; and the patient does not menstruate, simply because she has no blood to spare. Nothing can be more ridiculous than applying electricity or any other local stimulant to the uterus when chlorosis exists; the first great indication will be to restore general health, give iron to make up for the previous deficiency of that element in the blood, and then, and not before, use electricity.

Transmit a dozen shocks through the uterus, from a jar holding about a pint, one conductor being placed over the lumbo-sacral region, and the other on the pubes; or use the *alternating current* from the electro-magnetic machine, as the electricity seems here to act simply as a local stimulant quite independently of exciting any uterine contraction.

Part xvi., p. 286.

Suppressio Mensium—Stramonium as an Emmenagogue.—Give a purgative, and then administer tincture of the seeds of stramonium (stramon. sem. ζ iv.; alcohol, dilut. Oj.) in the dose of twenty drops thrice a day, adding a drop to the dose each day, and continuing it till it produces either dizziness and vertigo, or the catamenia.

Part xviii., p. 300.

Japanese Remedy for.—Vide Art. "Sterility." *Part xxii., p. 320.*

Case of Successful Administration of Key-Tse-Sing, or Japanese Emmenagogue.—The patient was a stout girl, twenty years old. The catamenia appeared at the age of thirteen, but ceased about the age of sixteen, previously to which she had epileptic fits for three months. For three or four years previous to the administration of the remedy, she had

regular attacks of hæmoptysis or epistaxis every three or four weeks, though no sign of tubercle could be detected in the chest. Every means was tried to restore the discharge, but, says Dr. White, under whose care the case occurred:

All having failed, after six months' time I resolved to make an experiment with the key-tse-sing. On November 6th, she commenced taking three drachms of this medicine every six hours, in a little hot gin and water, and continued to do so for three days, when, not having experienced any effect from it, except some pain in the back, she omitted it for two days. I urged her to persevere with the medicine a little longer, and she recommenced taking it every four hours. On the second day (November 13th) the catamenia appeared, and flowed normally for three days.

She felt no inconvenience from the medicine, except some slight pain in the back.

This remedy will prove one of the most certain and valuable additions to our materia medica; and the only fear I have in its introduction is, that it may be abused, and become the too ready instrument of procuring abortion.

Part xxiii., p. 303.

Amenorrhœa.—In a stubborn case where the catamenia had never appeared, with constant severe uterine and lumbar pains, the key-tse-sing was given, and after thirteen doses the discharge was ample, first of a brown sandy color, afterward a free, florid, healthy discharge.

In anemia, depending on amenorrhœa, the general characters of the blood are very similar to those met with in cases of anemia arising from other causes. Loss of blood from any cause appears to lead to the same morbid condition of that fluid as the defective secretion or elimination of certain principles which ought to be separated from it. This latter condition is always fulfilled in amenorrhœa, which disease is by far the most frequent cause of anemia in girls of the age of twenty; and it appears the more remarkable, when the great similarity of composition of ordinary blood and of the menstrual secretion is taken into consideration. So that the same alteration in the constituents of the blood may be brought about by loss of blood, as in menorrhagia, or by the opposite condition of amenorrhœa, or suppressed menstruation. In these cases the amount of water is usually much increased, and the quantity of solid matter proportionately diminished.

Chlorotic Amenorrhœa.—Employ the galvanic cataplasms of Professor Récamier. They are described as follows: "Each of these cataplasms, or disks, if a scientific term be preferred, is a galvanic pile composed of twelve couples. The couple is formed by a ribbon of zinc and copper, and each couple is separated by a piece of flannel. On the colored side is cotton wool; on the other, a piece of gutta serena tissue to insulate the apparatus. The only difference between the two disks is, that, in the pink one, the copper stands first, while the zinc comes first in the one covered with blue. The electrical force generated in the apparatus is sent through the copper rings, to which the insulated copper wire can be attached when the more energetic effect of the two cataplasms is required. In some people the acid perspiration of the skin is sufficient to increase the intensity of the electric action; but more active effects

are produced by wetting the flannels with diluted vinegar, or a weak solution of common salt, as is seen by the action of the apparatus on the electrometer. When one of these cataplasms is tightly bound to the surface of the skin, it gives an unusual sensation of warmth—a pricking sensation is felt, and the skin is made red; and, when two of the cataplasms are connected by the arm, and applied to the same surface, but at some distance from one another, a stronger effect is produced when one is applied to the organ we wish to influence, and another to the opposite portion of the spine. Such are the modes of application; and it may be worn day and night without inconvenience, though, in ordinary cases, it is only under application at night.”

Part xxiv., p. 347.

Headache in Amenorrhœa.—*Vide Use of Nickel, Art. "Headache."*

Part xxvi., p. 338.

Amenorrhœa.—Dr. Mikschik says he has derived great advantage from the tincture of iodine, as an emmenagogue, applied daily to the os uteri.

Part xxxiii., p. 296.

AMMONIA.

Muriate of Ammonia—Use of Internally.—*Vide Art. "Congestions."*

Part ix., p. 86.

Medical Uses of Urate of Ammonia.—Dr. Bauer is convinced that this is a most valuable medicine in chronic cutaneous diseases, and in tubercular diseases of the lung. An ointment containing one scruple to the ounce, is applied by a pencil to the eruption night and morning, the cure being effected in from one to three weeks. In tubercular disease the ointment is rubbed in alternately night and morning on the back and front of the chest. No inflammatory complication should be present during its employment.

In reference to this substance it is interesting to observe, that in Columbia, South America, where lepra prevails so extensively, the benefit derived from the external and internal use of *guano* has been placed beyond all doubt; and Dr. Lallemand has found it of great utility in the treatment of morphaen in the Brazils. The urate of ammonia, which is found in this substance in great abundance, is probably the chief medicinal agent.

Part xxvi., p. 293.

Medicinal Effects of Ammonia and its Preparations.—Ammonia had never been considered to be a normal constituent of the blood, as its presence had not been detected except after death in cases of typhus, cholera, melæna, and other diseases of a putrid character, until Dr. Richardson's recent discovery that healthy blood owes its fluidity to the presence of ammonia, which is given off during its coagulation, which process may be arrested, and the fibrin redissolved, by the restoration of the alkali. An interesting inquiry here suggests itself: how does the ammonia escape from the body during the coagulation of the blood, and how is it retained in those instances in which the blood remains fluid after death? Assuming the truth of Dr. Richardson's views, the author examined and

compared the therapeutic effects of the various preparations of ammonia; and he has found that, whether applied externally or taken inwardly, they possess in common the property of dissolving the protein elements of the blood, whether in the vessels or effused into the tissues, and thus confirm the experiments of Dr. Richardson. This similarity in the effect of ammoniacal medicines is owing to their ready decomposition, the ammonia being separated, and forming the chief curative agent, though it is aided by the other substances originally combined with it. Thus its stimulant and solvent action is similar in kind, if not in degree, when used either externally or inwardly in the form of gas, liquor ammonia, or combined with carbonic acid, etc. From the utility of these preparations in the treatment of venomous bites and stings, inflammatory swellings, diphtheritis, croup, etc., we may suppose that they will be equally efficacious in urticaria, erythema nodosum, and erysipelas, in which there is an effusion of fibrinous elements of the blood. In these and other inflammatory diseases and conditions, it is probable that the ammonia is carried out of the system in the form of urea or lithate of ammonia contemporaneously with the increase of fibrin in the blood; and that the benefit of the salts of ammonia, in such cases, is owing to their preventing or removing the effusion of fibrin from the inflamed parts. In this way, although the primary action of ammonia is stimulant, its remote effects are sedative or debilitant, as it not only arrests inflammatory action, but by its resolvent and secernent power, carries the products of inflammation out of the system, and hence its utility in all active febrile complaints. It is to this attenuating property that its use as an antidote to drunkenness and to the stupor of opium is to be ascribed. Its stimulant powers are of use in poisoning by hydrocyanic acid, in the cold stage of ague, and in the retrocession of gout, rheumatism, and the exanthemata, as well as in syncope, hysteria, epilepsy, and convulsions. The hydrochlorate, which is the least easily decomposed, is probably the most useful of the salts of ammonia, as it not only possesses the stimulant, resolvent, secernent properties of the others, but owing to its combination with chlorine, is endued with tonic powers, by which its prolonged use, unlike that of the other preparations, is attended with invigorating effects, both to mind and body; and thus it forms an excellent substitute for mercury in cases where this medicine is inadmissible from its tendency to produce cachexia. *Part xxxv., p. 289.*

Ammonia.—Dr. Richardson's discovery, that healthy blood owes its fluidity to the presence of ammonia, which is given off during coagulation, and which process may be arrested and fibrin redissolved by the restoration of the alkali, suggests the utility of ammonia in all diseases accompanied by or depending on effusion of fibrin, as croup, diphtheritis, erysipelas. Thus ammonia has two actions—primary stimulant, secondary debilitant. Its stimulant powers in hysteria, ague, syncope, and poisoning by hydrocyanic acid, are too well known to need mentioning. Of all the salts of ammonia, the hydrochlorate is the most useful when its antifibrinous property is required. *Part xxxvi., p. 273.*

AMPUTATION.

After amputation of the limbs, affections of the chest often supervene. When apprehended, recourse to blistering over the chest advised.

Part iii., p. 116.

Amputations—Primary and Secondary.—In *primary amputations*, as in cases of accident to healthy persons, try to obtain union by the first intention.

In *secondary amputations*, and in those performed for diseases of the limbs, and when the incisions are made through diseased tissues, there is a disadvantage in bringing them together. They will almost invariably open again, and place themselves in the position in which they should have been left from the first. This is especially liable, when limbs are amputated for diseases which have been attended with considerable discharge. In all these, it is dangerous to stop the discharge suddenly.

Mr. Alcock advises passing a skein of silk through the lower part of the wound, to maintain for a time constant irritation and discharge of matter.

Part iv., p. 91.

Amputation and Mode of dressing the Stump.—Preference given to the flap amputation. The instrument used for the operation is a straight-backed knife, with an edge gently curving toward the point, and of a length varying with the size of the limb to be removed.

With only one exception (in which the ordinary tourniquet was applied), the artery of the limb was commanded by the fingers of an assistant, compression being made with moderate firmness over the axillary or brachial arteries in amputations on the upper extremity; and over the upper part of the femoral artery in operations on the lower limb. It is found that very little blood is lost when this plan is adopted, and where a tourniquet is used, the retraction of the flaps is interfered with to a great extent.

Mode of dressing the Stump.—When ligatures have been tied around the principal arteries of the stump, the hemorrhage from the smaller vessels is arrested by covering the recently-divided surfaces with lint, soaked in cold water.

This is removed and re-applied every few minutes at first, and then at longer intervals, until all bleeding has ceased; and in order to insure the actual application of the cold water to the bleeding surface, the coagula are from time to time gently removed.

When all oozing of blood has ceased, and when the divided surfaces become glazed over (which happens generally in from four to seven hours after the operation), the wet lint and small remaining coagula are removed, and the dressing of the stump proceeded with. The flaps, which are in the most favorable state for union, are now brought accurately together, and retained by several points of interrupted suture. The number of sutures requisite for this purpose varies from two to four; but more than three are seldom used, even in amputation of the thigh. They are removed frequently in twelve or twenty-four hours; but if the flaps are large and heavy, and the threads cause no redness in the neighboring skin, they may be left for several hours longer, to prevent any dragging on the recent adhesions. When the flaps are thus in apposition, the edges are more closely brought together by means of strips of plaster applied

over the face of the stump, at a little distance from each other, so as to allow of the ready escape of discharge, and the abstraction of the sutures when necessary.

A plaster formed of oiled silk, spread with a solution of isinglass, is preferred to resinous plaster.

No bandage is applied at first, but the stump is left uncovered and cool.

When suppuration is fairly established in those parts of the stump which have not united by the first intention, the plaster is usually removed, either entirely or in part, and the end of the stump dressed with lint dipped in tepid water, or in a gently-stimulating lotion, and covered with oiled silk. The bandage also is then brought over the end of the stump in such a manner as to support the flaps together, as the plaster hitherto has done.

Part v., p. 119.

Hæmostasis.—To prevent hemorrhage in certain cases of amputation, the employment of *hæmostasis* is recommended.

This consists in the application of ligatures to the extremities, sufficiently tight to arrest the venous circulation, while they allow the arteries to pulsate. A large proportion of the blood may thus be temporarily withheld from the general circulation. *Vide* "Hæmorrhage." *Part vii., p. 67.*

Amputation at the Ankle Joint.—Case cited from disease of the *astragalus, os calcis*, and other tarsal bones. It has been too frequently the custom for surgeons to amputate the leg below the knee in cases where neither Mr. Hey's amputation between the tarsus and metatarsus, nor that of Chopart's, which leaves only the astragalus and os calcis, could be of use. So long as the disease exists in the foot below the astragalus and os calcis, Chopart's operation would be invaluable, and when it exists still lower down, that of Mr. Hey's must be equally, if not more so, but even where the astragalus or os calcis, and even where the ankle joint is implicated, amputation of that joint, and taking off the diseased extremities of the tibia, is now practised with success; thus enabling the patient to walk with very little artificial assistance, and to a very considerable extent diminishing the danger of amputation below the knee. When we consider that the diseases which have hitherto required amputation of the leg below the knee seldom affect the leg itself, because when they do so, amputation above the knee is generally required, we shall see at once that an operation by which the leg is saved, is not only practicable, but of the greatest consequence; and this observation extends also to diseases of the foot for which amputation at the ankle joint will often be found exceedingly useful.

In cases, therefore, of compound dislocation of the astragalus and caries of this bone, with its adjoining articulating surfaces, amputation at the ankle joint ought generally to supersede the old practice of amputation below the knee: and even when the whole ankle joint is diseased, and the articulating extremities of the tibia and fibula are implicated, these diseased portions may be safely removed by the saw, as the caries seldom penetrates to any great depth into the cancellated texture, and much more frequently exists almost exclusively between the astragalus and os calcis, and not between the astragalus and bones of the leg. Three very important advantages, therefore, result from this operation: 1st. A more comfortable stump is formed. 2d. The risk of life is much less. 3d. The limb will be much more useful and seemly. *Part vii., p. 126.*

Hæmorrhage after Amputation.—Two cases mentioned, of venous

hemorrhage occurring immediately after the arteries had been tied, from obstruction to the venous circulation by the retraction of the fascia or integument, a free incision through which caused an instant cessation of the loss of blood.

Part ix., p. 178.

Disarticulation at the Ankle.—This operation, which has been so strongly recommended by Mr. Syme, is certainly a great improvement in surgery, and will be available when neither of those recommended by Hey and Chopart can be useful. It will, in fact, leave the patient a very useful leg.

How many cases do we now see in the country, in whom amputation below the knee has been performed for disease and accidents below or at the ankle joint, when amputation of this joint, and the preservation of the hard skin on the heel might have secured to the patients the use of limbs almost as useful as the perfect ones. We have to thank Mr. Syme for bringing this subject repeatedly and prominently before the profession; and more especially for making such a flap of the under part of the foot and heel, as to enable the ends of the bones to bear the necessary degree of pressure. In his earlier operations, Mr. Syme seems to have made the flap too long, and now gives directions to perform the operation somewhat different. "The incisions across the instep and sole of the foot should be curved, with the convexity forward, and exactly opposite each other. A line drawn round the foot, midway between the head of the fifth metatarsal bone, and the malleolar externus, will show their extent anteriorly, and they should meet a little further back, opposite the malleolar projections of the tibia and fibula. If the ankle joint is sound, the malleolar processes should be removed by cutting pliers; but if the articulating surfaces of the tibia and fibula be diseased, a thin slice of these bones should be sawn off." The stump is conical, and has for its apex the thick skin of the heel. When we consider how rarely amputation below the knee is performed for disease of the leg, and how much oftener for diseases of the foot and ankle joint, we may expect to see this operation come into much more general use.

In compound dislocation of the ankle joint, for example, will it not be safer to have recourse to disarticulation, than to attempt to preserve the whole limb? Many lives have been lost in attempting to retain the foot in these cases; only two out of thirteen cases in the Royal Infirmary of Edinburgh recovered; and even when the foot is saved it is so stiff and weak as to be rather an incumbrance. There is some reason in running considerable risk, when the only alternative would be amputation below the knee, but none when we remember that amputation at the ankle would not only considerably diminish the risk to the patient, but would secure as good a limb as in the other case.

Mr. Lyon, of Glasgow, points out the risk of sloughing to the under or posterior flap when it is made too long, as in some of Mr. Syme's earlier cases, and hence the necessity of adjusting its edges very carefully to those of the anterior flap, in order that it may receive blood from this as early as possible; and hence also the necessity of keeping up the temperature of the part by carded cotton, warm water dressing, or the like. It seems that in many cases the head of the femur itself may be excised, instead of having recourse to amputation at the hip-joint. Dr. Bonino draws the attention of the profession to this subject.

Part x., p. 107.

Amputation at the Knee.—There are few operations in surgery which have excited much more discussion, or afforded room for the exercise of more ingenuity, than amputation of the thigh. And although the various

modifications which have been introduced have certainly had the effect of restraining the hemorrhage, diminishing the suffering, and promoting union of the wound, the average frequency of deaths is still not less than from 50 to 70 per cent., whilst protrusion of the bone is a frequent sequela. Mr. Syme says that:

Having seen the circular incision give place to the flap operation, and having witnessed the results of these methods variously modified in the hands of many surgeons possessing every degree of operative skill, I am at length led to the conclusion, that there is something radically wrong in the principle of the operation. This error I believe to be, dividing the thigh-bone through its shaft instead of the condyles or trochanters.

The most frequent occasion for amputation of the thigh is afforded by disease of the knee-joint. Next to this may be ranked compound fractures of the leg and thigh; and then tumors growing from the bones of the leg and thigh. Now, in regard to diseases of the knee-joint, it is well ascertained, that the warrant for amputation lies in the bone, and not in the soft parts, which, however much altered through scrofulous degeneration or suppuration, readily admit of restoration to their natural condition, as is clearly shown by what happens after excision of the elbow, or amputation at the ankle joint. In so far, therefore, as removal of the disease is concerned, it is plain that amputation through the condyles of the thigh bone would in this case prove sufficient. As to compound fractures of the leg, it will be admitted that if the integuments and muscles admit of the limb being removed at the middle, or lower third of the thigh, they cannot present any obstacle to a few inches more of the bone being preserved, while similar injuries of the thigh obviously require amputation at the trochanters. The same observation will apply to tumors of the bones, those of the tibia and fibula not requiring any more of the thigh-bone to be removed than may be suggested by convenience, and those of the thigh-bone itself demanding the highest practicable point of section. From this analysis it appears that taking merely the morbid condition into account, all the cases admitting of amputation at or below the middle of the thigh-bone, would admit of the operation being performed through the condyles.

The superiority of this operation to the one formerly practised, consists in the less amount of liability to exfoliation of spongy in comparison with dense bone; the medullary membrane, not being interfered with, is not likely to inflame and suppurate, and phlebitis is not likely to occur, and thus the chances of a favorable issue of the operation are very much increased. Protrusion of the bone, we may expect, will hereby be avoided, and thus the neatness of the stump will not be interfered with.

The first case was a young man, 21 years of age, admitted January 29th, 1844. The left knee had occasionally been painful for five years, and for the last twelve months had increased rapidly in size. A large abscess, pointing on each side of the ligamentum patellæ, was opened, but the local uneasiness continued to increase, and the general health declined. The operation was thus performed:

Having applied a tourniquet, so as to compress the femoral artery where it enters the popliteal space, I made an incision across the knee on a line with the upper edge of the patella—then pushed the knife from one side to the other under the joint—cut a flap from the calf of the leg—and finally sawed through the condyles of the thigh-bone, so as to remove the whole articulating surface which was ulcerated and carious. On bringing the

edges of the wound together. I found the flaps were scarcely sufficiently long, as they required a little stretching to meet, and when stitched appeared more tense than is usually consistent with adhesive union. It was, therefore, with considerable surprise, and no less pleasure, that we saw the healing process proceed without retraction of the covering from the bone. The edges of the *skin* indeed separated from each other to the extent of nearly two inches, but the subjacent textures remained adherent, until the superficial sore gradually contracted and cicatrized. The recovery, though thus rendered slow, was ultimately completed, and the patient returned to his distant home on the 31st of May.

The result of this case tends to confirm the expectations that had been previously formed with regard to the advantage of amputating through the cancellated extremity instead of the shaft of the thigh-bone, since there could be no doubt that exfoliation of the surface to any extent, however small, would have been attended with separation of the flaps and projection of the bone.

The second case was a young woman, 22 years of age, with disease also of the left knee, of nearly three year's standing. Frequent application of the moxa and other means having failed of affording relief, and the general health rapidly declining, amputation was resolved on.

Profiting by former experience, I on this occasion made the anterior semilunar incision on a line with the *lower* edge of the patella, and had the integuments retracted, before cutting into the joint above this bone. In other respects the operation was conducted as the first one had been, and when the edges of the wounds were approximated, they came easily together, presenting a proper degree of fullness, without any straining or tension. The union was nearly completed by the first intention without any local or constitutional disturbance; the flaps, instead of showing any tendency to retraction, rather becoming more full and soft; and the patient presenting the aspect of one who had sustained some trivial injury, rather than undergone a capital operation. On the 14th day she was sitting by the fire, and took the dressings off without any assistance. This case should, I think, remove any doubt that may have existed, as to the safety of amputating at the knee, and consequently as to the expediency of doing so with a view to avert the danger of operating through the shaft of the thigh bone. It is upon this ground that I wish to found the operation, and I therefore have said nothing of some other advantages which might be mentioned—such as the greater length of stump which, especially in females, must be desirable for the sake of appearance, and may, perhaps, be made available for using a support admitting of flexion at the knee—or the facility afforded to employ the tourniquet, which causes serious embarrassment in removing the limb at any higher point. I may remark, that the posterior flap must be made very long, and indeed to the full extent of the fleshy part of the *gastrocnemii* muscles—care being taken, however, to avoid preserving more than a moderate portion in regard to thickness.

Part xi., p. 111.

Amputation of the Elbow and Shoulder Joints.—In many of the diseases of the elbow and shoulder joints, amputation is not required. The diseased bones may easily be taken out, and a considerable degree of motion may be retained. Park and Moreau first adopted this valuable mode of operating, and it is now become pretty general.

Mr. Liston says: It is a troublesome thing to separate the articulation in a sound state and get the bones out; but when the joint is in a diseased condition, the parts may be easily separated from each other. You are not entitled to operate unless the joint is disorganized, and you are then able easily to thrust out the bones of the humerus and forearm, and cut them off. The principal point to be attended to is, to avoid including in your incision the ulnar nerve. You so make the flap that you guard against interfering with it, and at the same time expose the joint throughout. All sort of flaps have been made, but the most simple plan is to make an incision along the nerve toward its radial side. In this way you turn the nerve over the condyle, and then make a cross-cut right into the joint. In this operation you cut at once through muscles and everything else, fairly down to the diseased joint. Having exposed the joint thoroughly, you have no difficulty in opening it. There is no looking for the lateral ligaments; you cut them across; and in the living body there is, as I have said, no trouble whatever in getting out the end of the humerus, applying the saw, and cutting off its extremity. You then denude the other bones, always taking care to cut toward them, thus saving the muscles and their tendons, the vessels and nerves; you will forthwith saw off the ends of these bones. In operating on a young subject, you can cut these bones with pliers, and in very young subjects there is no occasion whatever for the saw under any circumstances.

After the removal of these bones you bring the wound together, having put the bones of the forearm at right angles with the humerus, and in a state betwixt supination and pronation. After the wound is in a great measure healed, you may employ passive motion; and in young subjects the motion of the joint may, as I have said, be to some extent preserved.

The shoulder-joint is sometimes affected with a similar disease. The apparatus of the joint is destroyed, the upper part of the humerus is, perhaps, in a great measure, denuded by an abscess, and sometimes there is a corresponding disease in the glenoid cavity. Your object must be to get the patient out of the hectic condition into which he has fallen, and this you cannot effect without removing the diseased bones.

Here you will make the incision at the back part of the joint, and carry it fairly down to the articulation, pretty nearly along the posterior border of the deltoid. Having thus cut down at once upon the diseased head of the bone, there is nothing to prevent you from displacing it and taking it out of the socket. The capsule is all destroyed, the head of the bone is probably a good deal diminished in size, and by cutting open the joint you at once dislocate it. You carry the limb across the chest, and by pushing it up a little you get to the neck of the bone, and by applying your saw you may take away all the diseased articulating surface. You have thus made a large cavity, and if on examining the surface of the scapula you find that also diseased, you can easily, by detaching the soft part, and applying cross-cutting pliers, cut that off. By this means you get rid of the disease, the cause of the discharge and hectic. It is of great consequence to take away all the diseased bone, and the probability is, that if you succeed in doing so, the discharge will cease, and the sinuses heal up permanently. And you may be told, or you may have read in books, that you ought to be guided, in making your incisions, by the sight of the openings—that you ought to lay the various papillæ and sinuses into one wound. This, however, is a cruel and unnecessary course; the fact is,

that upon removing the cause of the discharge, the openings will all heal up without your troubling yourselves about them. The same remark applies to operations in other parts of the body, to amputations of portions of the hand, foot, etc. The patient, after losing the head of his humerus though he may not be able to use his arm above his head, will still have all the motions of his hand and forearm. *Part xi., p. 114.*

Amputation at the Hip-joint.—Mr. Struthers reports a case of successful amputation of the hip-joint, for osteo-medullary sarcoma of the os femoris, which occurred in the practice of Dr. Handyside.

The mode in which Dr. H. operates is by the formation of antero-posterior flaps, as improved by Mr. Liston.

It is commonly believed, that this operation is in itself much more severe and dangerous than that of amputation through the trochanters, or at the upper fifth of the thigh; but the difference between them is not so great as might at first sight appear. The flaps formed, the vessels divided, and surface exposed, are nearly the same in both; whereas in the former, the operation is much more easily and more rapidly executed, and the removal of a few inches more of the bone is attended with less shock and danger to the patient, than is the division of the bone by the saw, in its trochanteric region. Lastly, any greater fatality which may have followed the former, is due to the fact that the cases in which it has been performed, have been much more complicated and dangerous, as well as more hopeless, than those in which the latter operation has been practised. The superiority, also, of the operation of disarticulation, in a case of disease of the bone, where there is suspicion of the upper end being affected, is sufficiently evident.

In regard to the easiest, safest, and best method of performing an operation of such magnitude and importance as amputation of the hip-joint, surgeons are not yet entirely agreed. Very many different methods have been proposed and practised, but these may be referred to three principal methods, with their modifications; excluding that by the circular incision, which was recommended and even practised by Mr. Abernethy. It is also almost unnecessary to notice the old preliminary practice of securing by ligature the common femoral artery, as practised by Baron Larrey, this being now superseded by compression, effected by the fingers of an assistant. *First*, There is the method of making directly lateral flaps by transfixion and cutting from within outward; the disarticulation being effected between the formation of the flaps, as practised by Larrey—the internal flap being first formed. This method has been varied by different surgeons. Thus, Langenbeck reverses the order of forming the flaps, by beginning with the external; and Dupuytren begins with the formation of the internal flap by cutting from without inward. *Secondly*, The method by the formation of postero-external and antero-internal flaps, effected also by transfixion, and then cutting from within outward, beginning with the external flap, but leaving the disarticulation till the end. This method is practised and recommended by Lisfranc, and has been followed by Mr. Syme. It has also been varied by cutting from without inward. *Thirdly*, The formation of antero-posterior flaps, the disarticulation being effected after the formation of the anterior flap. The anterior flap is derived partly from the inner side of the thigh, and the posterior one partly from its outer side.

The last described method was practised by various surgeons, so far back as the year 1806, but in such a manner as not to have been generally adopted by subsequent operators, the anterior flap having been made of great length, and the posterior one cut very short. An improvement on this method, adopted by Mr. Liston, is that which was practised in the present instance. As to which of these methods the preference should be accorded, the surgeon must be guided principally by the nature of the case. However, when circumstances will allow of it, the antero-posterior flap method will be found, I believe, to be the preferable one. The vessels divided are the same, and they are more easily secured than when the surfaces exposed are lateral—the flaps are of more equal dimensions, and lie afterward more accurately in apposition—the articulation is more rapidly reached, and is exposed at a more favorable part for being opened—the head of the bone is more easily dislocated, and the division of the ligaments more easily effected; the removal, too, of the limb is completed with one instrument only, and, finally, by this method the whole operation can be much more easily and rapidly completed, than by practising any of the other methods.

Part xi., p. 115.

Amputation at the Knee.—J. R. æt. twenty-four, had for seven years had disease of the left knee-joint. About a year before admission into hospital, an abscess formed, which burst, and has since continued to discharge matter. He was kept four or five months in hopes of a change for the better, but instead of that he grew worse, so it was resolved to amputate, in accordance with the man's own wishes. This was done as follows:

The operator, standing on the outside of the limb, placed the heel of a common flap amputating-knife upon the skin on the inner side of the joint, immediately over the condyle, and made a semi-lunar sweep across the front, extending below the apex of the patella until the point of the blade was opposite the external hamstring, when it was thrust straight across the limb, through the popliteal space, and made to appear at the part where the incision in front was commenced; the blade was then carried downward so as to form a flap, from the muscles on the calf of the leg; the skin in front was now drawn above the level of the upper margin of the patella; the quadriceps extensor was next divided; a circular sweep was then made round the bone, immediately above the condyles, and the saw was used to complete the separation of the limb. A tourniquet had been applied previous to the operation, and little blood was lost during the incision; a good deal was lost, however, before all the bleeding vessels could be secured, and this seemed principally on account of the difficulty of applying a ligature to the popliteal artery, which, owing to the thickened and hardened condition of the tissues around it, could not be seized and drawn out with the forceps in the ordinary manner. At last, after the application of several ligatures, the bleeding here seemed arrested, and the other smaller vessels were next secured; the large posterior flap was then brought forward, and a few stitches were employed to hold the surface and margin together. The wound was lightly covered with lint wetted with cold water, and the house surgeon was desired to bring the edges more accurately together in the course of six or eight hours, when it might be concluded that there would be no more bleeding. Nothing very unusual occurred; the ligatures were discharged at the usual time; the flaps, which were at first thick, hard, and nearly inflexible, from

their proximity to the disease, speedily assumed a more healthy condition, and appeared as if they had been cut originally from parts perfectly sound. Union by the first intention took place throughout the greater part of the wound, the open sores were left gradually to close, and although there are still several small points of open surface, and the cicatrix is slightly oedematous, the patient moves about, is greatly improved in appearance and health, and has no complaint whatever connected with his former ailments.

In his clinical remarks on this case, Mr. Fergusson stated that he had been induced to select the site of this operation chiefly by the published recommendation of Mr. Syme, of Edinburgh, in its favor.

Mr. Syme favored this operation chiefly on the supposition that in consequence of the femur being cut across so close to the epiphysis, there would be less risk of inflammation of the medullary canal, and consequent necrosis of the bone; and it was well known that this result (necrosis) was more likely to follow an injury of the hard portion of the shaft than of its spongy extremity, there was on this account great inducement to apply the saw thus low down. But there were other good reasons for choosing such an operation, and not the least of these was, that amputation for certain injuries and diseases in the leg, necessitating the section above the knee, might nevertheless be done so low down—so far from the trunk, comparatively, as to lessen the risk on that account as well; for it was a maxim, that the danger of amputations increased as they approached the trunk. Hitherto, when an operation of this kind had been done above the knee, the knife had been so applied as to reserve all the soft parts to form the stump from the thigh alone; but here it would be remarked, that the flap for a stump of the thigh had been taken from the leg, where in such an instance as that which was at present under notice, there was ample material for making a flap of any extent that might have seemed desirable. The swelling of a joint, wherein the articular surfaces and ends were in a state of ulceration and caries, had been proved to depend entirely on these diseased conditions, as had been evinced by excisions of such parts, and it was a doctrine of modern surgery, that in removing caries, there was no necessity for reaching beyond the actual seat of the disease. There were many examples of incurable affection of the knee-joint which might possibly be best treated by such a mode as had been followed in this instance.

One objection to the operation was apparent at the time it was done, and that was, the difficulty of securing the popliteal artery. The vessel was so surrounded by effused lymph, and condensed cellular tissue, that he had to slit up the tissues ere he could seize the vessel with the forceps, and even then it was with no inconsiderable trouble that he could get a ligature placed so as to stop the flow of blood. *Part xii., p. 144.*

Mode of Amputating the Superior Maxillary Bone.—The following plan of operation is recommended by Mr. O'Shaughnessy, in performing amputation of the upper jaw:

The patient is to be placed in a strong arm-chair, with his head resting against the breast of an assistant, or on a crutch attached to the back of a chair. A second assistant stands at the patient's side, preparing to make pressure on the carotid artery, should it be necessary to do so in the course of the operation. The operator then takes his place in front of the patient, and should the extent of the disease require the removal of the whole of the malar and maxillary bones, he makes an incision commencing at the zygoma

matic arch, and terminating in the angle of the mouth. This incision should be first drawn over the zygoma as far as the malar eminence, then downward over the surface of the tumor, to within half an inch of the angle of the mouth and into the cavity of the mouth, through the centre of the commissure of the lips, the knife being guided by the fore and middle finger of one hand, placed for the purpose in the mouth. By dissecting this flap upward, the whole of the attachments of the tumor may be laid bare; by detaching the upper lip and ala of the nose, the nasal process and hard palate are exposed. The zygomatic process is to be freed from the temporal fascia superiorly, and from the masseter muscle inferiorly at the point to be divided by the nippers. The orbital process is next exposed by raising the conjunctiva of the eye with the inferior oblique muscle. All these incisions and dissections, except the last, should be made with rapidity, as there are no parts of any importance endangered before arriving at the orbit. The cheek is next dissected downward and backward for a little way, and then the hard attachments are severed with the bone nippers in the following order: The zygomatic arch is first to be cut through; the malar bone is next to be separated from its connection with the external angular process of the os frontis, by cutting backward into the speno-maxillary fissure, taking care to guide the forceps with the fore-finger, so as to save the eye from injury. The nasal process must now be cut through by inserting one blade of the nippers into the nostril, and the other into the angle of the orbit; from this the floor of the orbit may be divided by cutting it across with a strong knife to the speno-maxillary fissure. An incisor tooth or two, if necessary, is next to be extracted, and the palate process as far back as its junction with the palate bone, cut through with the nippers, keeping close to the tumor, in order not to remove more healthy bone in this situation than is absolutely necessary. The whole of the hard attachments being now divided, the tumor is found to be movable, and in general, slight pressure is found sufficient to displace it; when the knife is again resumed, and the external pterygoid muscle posteriorly, and the masseter muscle anteriorly, and the mucous membrane at the back of the mouth and cheek cut through, and the tumor removed. No matter how large the tumor, and how great the consequent distention of the cheek may have been, I recommend most strongly that no portion of the skin of the face, if healthy, be cut away. It almost invariably contracts to very nearly, if not completely, its natural dimensions, and if any of it have been removed with the tumor, no matter how small that portion may be, the want of skin enough is much more likely to be complained of when the cure is completed, than of there being too much if the whole has been left.

Mr. Liston's directions for forming the flap are, to make an incision over the external angular process of the frontal bone, to be carried downward through the cheek to the corner of the mouth. A second incision is made along and down the zygoma, falling into the other. Then the knife is pushed through the integuments to the nasal process of the maxilla, the cartilage of the ala is detached from the bone, and the lip is cut through in the mesial line. With great deference to so high an authority on all points of operative surgery, and particularly with reference to this operation, I venture to differ with Mr. Liston as to the necessity of making three incisions through the integuments of the face, at least in the generality of cases, viz., one from the os frontis to the mouth, a second meeting this at right angles over the malar bone, and a third along the side of the nose, and

through the upper lip. I think the single incision described above, will be found to answer all the purposes proposed. By it the zygoma can be exposed with ease, a little dissection upward will lay bare the frontal and malar bones, and with the cheek, the ala of the nose and upper lip may be raised, and the alveolar and nasal processes exposed to the fullest extent. Of course cases occasionally present themselves, requiring additional incisions, but I think when they can be avoided (and I believe in the majority of cases they are not necessary), it will be found of advantage not to make them.

Mr. Lizars and Mr. Fergusson recommended that the saw should be applied to all the bony processes before attempting to cut through them with the nippers; but this I think quite unnecessary, as with the latter instrument they may be divided with perfect ease and smoothness, and certainly with far greater dispatch, and less pain to the patient, than by using the saw, whose action can with great difficulty be confined to the hard parts, and in fact its use is only necessary in the case before pointed out, viz., to divide the malar process where the malar bone may be saved. In all the cases detailed the tumor was of a large size. In the first, a fibro-cartilaginous tumor of the upper jaw, the mass removed weighed four pounds; and in the last, a case of osteo-sarcoma of the lower jaw, the tumor was as large as a child's head, necessitating the amputation of all the lower jaw, excepting the left ramus. All the patients did well.

Part xii., p. 146.

Excision of the Upper End of the Femur in Morbus Vascularis.—A lad of fourteen had suffered fifteen months from hip-disease, and was in the last stage of hectic. The head of the femur was displaced on the dorsum illi, and could be felt by the finger to have passed into a large sinus. The affected limb was four or five inches shorter than the other, and much bent at the knee and hip. There was no indication of pelvic disease.

Mr. Fergusson made a longitudinal incision on the hip over the head and neck of the bone, and those parts, with a portion of the shaft, including the trochanters, were removed, the bone being cut across with a common saw. The patient bore the operation well; the previous bad symptoms soon disappeared, and in two months he was able to move about the wards of the hospital on crutches, the wound being nearly closed.

Part xii., p. 147.

Re-section of the First Metatarso-Phalangeal Articulation.—In 1830, Dr. Pancoast removed the entire metatarso-phalangeal joint of the first toe, preserving two-thirds of the first, and the whole of the second phalanx. The case was one of caries from a nail run through the joint; which was much swelled, and had two fistulous openings low down on the sides of the foot.

"I made a semicircular incision, which traversed these openings, and dissected the flap, the base of which was toward the heel, so as to turn it backward upon the foot. This exposed completely the inner surface of the joint, and about half the length of the metatarsal bone. The joint was next opened, the metatarsal bone isolated from the tendon and the surrounding parts, and divided across near its middle with the metacarpal saw. On the removal of the fragment, the end of the phalanx was found carious; this was pushed out through the wound, and a portion a quarter

of an inch long removed with the saw. The interior structure of the adjoining part of the phalanx, which was soft and spongy, was scooped out with the end of the scalpel. The ends of the divided bones were then put in contact, and the flap brought down and secured with adhesive straps and a retaining bandage. Some suppurative discharge continued for three weeks at the posterior angle of the wound; but it ultimately healed up well. Solid union took place between the divided bones, and the patient preserved his toe, which was found after the cure about three-quarters of an inch shorter than the other. The only difficulty encountered in the after-treatment, was the tendency of the extensor muscle to elevate the point of the toe. Should I again have occasion to excise this joint, I would prefer to divide this tendon, in case I approximated the bones, inasmuch as the necessity for its use would be greatly diminished afterward, the middle phalangeal joint, in regard to position and office, supplying the place of the one excised; and there would be reason to expect that the reunion of the divided tendon would be sufficiently perfect to prevent (in conjunction with the dressing) the flexor muscle from drawing the point downward."

Part xii., p. 148.

Remarkable Change in the Bones of Stumps.—Mr. Adams mentioned to the Pathological Society of Dublin, some remarkable and interesting facts connected with the pathological anatomy of stumps. Mr. A. has found that when amputation of the forearm is performed whilst the patient is young, and the stump be used, a strong osseous union is formed between the radius and ulna, with its convexity downward, by which they are firmly united together. In another case, where the hand had been taken off at the wrist-joint, a similar formation was found. The same condition is figured in the Sandiforts' work, as above mentioned, but theirs are of the tibia and fibula, near the knee-joint.

Part xii., p. 149.

Prevention of Venous Hemorrhage during Amputation.—The occurrence of venous hemorrhage in amputations, is in some cases attended with the most serious results. Dr. Hannay considers the tourniquet as rather favoring than preventing venous hemorrhage, and he recommends the application of a skillful and experienced hand, where practicable. Dr. H. also adopts another mode of preventing this hemorrhage.

It is the application of a roller or bandage, very equally and neatly, very firmly and perfectly, so as to compress, with all bearable firmness, the limb from its very extremity up as high as the points of amputation will admit.

Part xiii., p. 205.

Circular Amputations—Hint on Dissecting back the Skin.—The most painful and tedious part of circular amputations is the dissecting back the skin to form a sufficient covering to the stump. Dr. Hannay recommends that an assistant should dissect back the skin on one side, while the operator does that of the other, and thereby shorten materially that most painful and unseemly part of the operation.

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Sutures after Amputation.—Whenever, says Dr. Hannay, stitches are put in the edges of flaps that are rather short, and so made to effect a stretching or dragging of the parts, they are inevitably mischievous.

I therefore offer it as the result of my observation, that when a flap is of

sufficient length to meet without the least dragging or stretching, then and there are stitches beneficial, and seldom to be omitted; but on the other hand, if the flaps be scanty, and if the employment of a stitch would keep them on the stretch in the least degree, then will they prove mischievous, and should not be employed. I need hardly say, that the introduction of the suture through the muscular structure of the flap is never admissible.

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An Opiate before the First Dressing after Amputation.—Dr. Hanway recommends a large dose of laudanum (30 or 40 minims), to be given before the first dressing after amputation, particularly of a large extremity. There is no doubt the shock to the nervous system is very great, and we should endeavor by every means to alleviate it. *Part xiii., p. 206.*

Excision of the Head of the Humerus.—Dr. Stratton describes an interesting case of excision of the head of the humerus. His patient, an Indian boy, about six years of age, received the contents of a musket, loaded with swan shot, in his left arm, he being at the time about six feet from its muzzle.

In the upper half of the arm, the soft parts are much injured, part of them seem to have been shot away, and in the margin of the wound there are several shot-holes in the integuments; two inches of the shaft of the humerus is destroyed; there is a thin glairy discharge from the upper part of the wound; a part of the shaft of the humerus two inches long, and several other loose pieces of bone, were removed, and also a quantity of moss, which the Indians had applied to stop the bleeding, which they say was not great at the time of the accident. There is but little constitutional disturbance; the skin is cool, the tongue moist, and the appetite moderate. The patient was laid on a table, with his left shoulder projecting over its edge. Of the lower part of the humerus the projecting extremity had been broken very obliquely, and on bending the arm at the wound, this sharp and almost pointed end was removed, partly with a saw, and then with the nippers. I then took hold of the lower extremity of the upper part of the humerus, and with a small double-edged scalpel cut along it upward toward its head, from the side of which a small splinter was removed. The head was then turned out of the socket by using the scalpel around it, and turning the other end toward the chest; the part thus removed measured two inches; no vessels required to be tied. Search was made in the soft parts for any pieces of bone that might have been driven in by the shot; lint, wet with water, was for the day put in the socket, the soft parts were adjusted so as to make the breach as small as possible; with a sling the elbow was raised up so as to aid nature in shortening the arm, in order that the loss of bone might be less felt; a single turn of a bandage confined the arm to the side, and a cloth, dipped in cold water, was applied over the wound.

In one hundred and twelve days after the operation the wound was closed, the left arm being a little shorter than the right. Eight months after the operation, he could use the left arm as well as the right, but could not elevate it quite as high: its motions were free, and he could use it with ease in lifting weights. The left shoulder was a little flattened, which was quite concealed by his dress.

Part xiii., p. 207.

Amputation of the Thigh.—Mr. Syme says he is now satisfied that there are circumstances in which the circular incision ought to be preferred. The perfect condition of the stump, where there is nothing but integuments to protect the bone, as at the ankle, led him to conclude, that if the circular operation could be performed with the certainty of providing such a covering, it might be employed with advantage in the lower third of the thigh. There is plenty of skin and plenty of room to employ the tourniquet, without impeding the incisions or retraction of the muscles, and the size of the wound is much smaller than at the middle of the thigh. Apply the tourniquet close to the groin; use a middle-sized knife, such as is employed for the flap operation. Make the incision of the skin as near the knee as possible; not in a circular direction, but so as to form two semilunar edges, which may meet together in a line, from side to side, without projecting at the corners, and divide the fascia with the integuments. Draw these up by firmly clasping the limb, and not by dissecting and turning back. Divide the muscles by a circular sweep of the knife down to the bone, and retract with the utmost care. This should be at least two inches; and, before using the saw, protect the muscles, and freely expose the bone by means of a split cloth.

Mr. Syme adds, as the soft parts required to form the stump in amputation at the knee, are apt to be so deranged, in their texture, as to delay, though not prevent, recovery, and thus in some measure counterbalance the advantage of exposing the cancellated instead of dense bone, together with the contents of the medullary cavity, "I do not persist in advocating amputation at the knee, now, when satisfied that the operation by circular incision, if performed with due care on proper principles, may be employed at the lower third of the thigh safely and advantageously."

Part xiv., p. 158.

Quain's Method.—In amputation, Mr. Quain makes the flaps short in the first instance, and adds to their length, subsequently, by circular incisions through the deeper muscles. Modifications, are, however, required, according as the parts to be amputated are not clothed with muscle, e.g., the leg and fore-arm.

Part xiv., p. 158.

Flap Amputation.—According to Mr. Bulley, the disadvantages of flap amputation are: 1. It is more painful from the extent of integument divided, and oblique division of nerves. 2. More protracted in its performance, in consequence of the difficulty of obliquely cut arteries collapsing.

Part xiv., p. 158.

Comparison of the Circular and Flap Operations.—In the thigh and leg, after amputation, it not unfrequently happens that everything looks well for a few days, but that then some matter forms, or the limb jerks, or is hot, or the skin gets just a little tight at one part over the bone. In these cases the flap operation succeeds better than the circular, for it rarely happens that the skin of the circular operation can be got well forward again after it has once begun to retract, or become tight, whilst the mass of muscle and soft parts of a flap can often be brought down again after they have retracted very considerably. In the thigh, puncture of the artery, above its division, is readily avoided in the flap operation, and cannot well be done in the circular. In the leg, the artery may readily be punctured in passing the knife behind the limb,

and wounded above its division; still this is no real objection to the flap operation below the knee, as the same accident may happen from the use of the catlin. The rapidity of the flap operation, as compared with the circular, is some advantage, but the whole operation is not necessarily shorter, for the number of arteries to be tied in the former case is generally greater than in the latter. During the last few years, the double-flap operation has been performed upon a large number of patients at St. Bartholomew's, by Mr. Stanley, and with the best result. In many of these cases, at their termination, the full soft condition of the face of the stump, the complete depression of the bone in the line of the union of the flaps, or beneath the front flap of the thigh, have been most marked, whilst the effects of inflammation, in rendering the stump tense, have been very much less than where the same accidents occurred after a circular operation.

Part xv., p. 176.

Amputation of the Thigh.—Dr. Cotton observes: In largely developed muscular limbs, from the extent of surface requiring to be exposed, and the difficulty I have sometimes witnessed and experienced in securing the vessels, particularly in amputations immediately below the knee, it has struck me that in forming the flaps the muscles might be advantageously transfixed less deeply, and the operation completed by circular incisions. Whether circular amputation at the lower third of the thigh, "where circumstances afford room," ought to supersede the division at its centre, as advised by Mr. Liston, for securing the most efficient and convenient stump, time and experience must decide.

Part xv., p. 177.

Question of Amputation in Mortification.—Professor Cooper says: With respect, first, to amputation, all practical men agree that, in cases of bad mechanical injuries, this is best done early, before mortification begins, or even inflammation comes on. The usefulness of this practice must be obvious; for, if you defer amputation till mortification comes on, you take the patient just when his system is least able to bear the operation; whereas, by prompt action you may anticipate these effects, and give the patient the best chance of recovery.

Another rule is to attend to the line of demarcation. Where mortification arises from internal causes, you would never be justified in amputating until this line is clearly marked, because by the absence of this line the system is shown to be still in that unfavorable state which induced disease in the limb, and, should you operate under these circumstances, you would have the stump attacked; it is therefore a rule in surgery, that where mortification arises from internal causes, you must never amputate till this line is formed. When the line exists you can see that the parts are dead on one side, and that the other exhibits a bright red color, as if from the presence of the arterial blood. You will then endeavor to strengthen the patient with nutritious diet; he will go through the operation better, and the results will be more likely to be favorable. At the same time, you should distinctly understand that this rule of waiting for the appearance of the line of demarcation is intended to apply only to mortification from *internal* causes: if we were to act on it in cases of mortification from *external* injuries, as gun-shot wounds for instance, the patient would either die before mortification had ceased, or sink into a low state, in which amputation would not be practicable—a state which very rapidly follows

these injuries. Now and then the gangrene will go down to the bone, and no operation will be required at all. *Part xvi., p. 179.*

New Mode of Bandaging Wounds and Stumps.—M. Baudens submitted a method which he had lately devised, of bringing together the edges of wounds in order to unite, and which he is now daily employing with success at the hospital. For instance, in order to unite the two flaps of integument, after the operation for removing the foot at the ankle, as practised by him, a bandage is fixed circularly above the stump, and in it are inserted two strong pins, one in front, the other behind, leaving their heads and points free. Around the two ends of the pins thus left exposed, a long and thick cotton thread is looped; the threads from both sides are next brought down to the edge of the stump, and crossed over the lips of the wound, which are held together by the fingers of an assistant. The thread being crossed over to the opposite side, is now passed under the ends of the pin of that side, from which, again, it may be made to recross. By this crossing of the threads of both sides over the wound a support is given to it similar to that afforded by a bandage. The crossing of the threads may be repeated as often as is deemed necessary; and the course of the threads of opposite sides may be parallel, or across, so as to make a figure of eight. The ends of the ligatures applied to the arteries, being also made fast to the pins, are in no danger of being torn away in removing any applications from the stump, as will sometimes happen with the old plan.

The advantages this plan offers are—the gentle pressure exercised by the thread; the avoidance of impregnation by the discharged matter, which cannot long remain in contact with the end of the stump; the open spaces left between the threads allows of a ready discharge of fluid matters from the wound; and the constant pull upon the circular bandage above the stump tends to draw the flesh toward its extremity, and so render it conical. This mode of bringing about the union of parts is, according to M. Baudens, applicable to all kinds of wounds, a suitable support being first contrived for the pins, on which the traction is exerted. The bandage should not be tight enough to obstruct the circulation.

Part xvi., p. 181.

Case of Excision of the Ankle-Joint.—The patient, a man twenty-three years old, had the astragalus and os calcis affected with caries, and as he objected to amputation either below the knee, or at the ankle, Mr. Wakley resolved to dissect out the diseased bones. The operation was performed with the patient under the influence of chloroform.

The diseased foot (the left) having been drawn forward so as to be free of the operating table, Mr. Wakley standing directly in front, and holding the scalpel in his left hand, made an incision from the prominence of the *internal* malleolus, backward and downward to the middle of the heel. A similar incision with the right hand was then made from the *external* malleolus, downward and backward to join the foregoing. A third incision was next carried along the edge of the sole, from the middle of the first to a point opposite the astragalo-scapoid articulation; and a fourth on the opposite side of the sole, from the vertical incision to the situation of the calcaneo-cuboid joint. These latter incisions enabled the operator to make a flap of about two inches in length from the under part of the sole. In

the next place a circular flap of integument was formed between the two malleoli, posteriorly, the lower border of the flap reaching to opposite the insertion of the tendo Achillis. This flap being turned upward, the tendon was cut through, and the os calcis having been disarticulated from the astragalus and cuboid bones, was removed, together with the integument of the heel included between the two incisions. The lateral ligaments connecting the astragalus with the tibia and fibula were now divided, and the knife was carried into the joint on each side, extreme care being observed to avoid wounding the anterior tibial artery, which was in view. The astragalus was then detached from the soft parts in front of the joint, and from its articulation with the scaphoid bone, and the malleoli of the tibia and fibula were removed with the bone-nippers. The only artery requiring ligature was the posterior tibial. During the few minutes the operation occupied, the patient did not manifest the slightest symptom of pain or uneasiness.

The case did well, and in a few months the man was able to walk very well with the aid of a stick and a high-heeled boot, and returned to his employment.

Part xviii., p. 101.

Compound Fracture and Dislocation of the Astragalus.—The patient, a lad 14 years old, was riding a vicious horse, which fell over on its side and crushed his left ankle.

The astragalus was dislocated from its connection with the os calcis, and this articulating surface turned outward through the lips of the wound. The bone was not separated from its attachments to the tibia and fibula, nor from the scaphoid anteriorly, but to allow the bone to turn half round, the neck had given way transversely. Both the anterior portion of bone which remained *in situ*, attached to the scaphoid, and the other larger portion, were clipped or broken more or less.

Treatment.—After a very careful examination of the parts, the foot, the vessels, and the boy's state generally, it was resolved to try and save the limb. The dislocated portion of the astragalus (amounting to four-fifths of the whole of that bone), was carefully detached from the tibia and fibula, and these bones let down upon the calcis. The edges of the wound were brought together with three or four stitches and plaster; a compress of lint was placed over them, covered with oiled silk, confined with a turn or two of the bandage, and the whole secured in Macintyre's splint. During the first week he suffered from irritative fever, but much less so than might have been anticipated. He took salines and aperients, etc., as required. There was very little oozing of blood after the first few hours, but synovia was discharged in considerable quantities. The treatment was persevered in, the wound being dressed still with dry lint under oiled silk, as often as necessary until about fourteen days, and the splint itself was of course re-applied. This was done continually until about seven weeks from the date of the accident, when it was discarded, and an inside wooden splint with a foot-piece substituted for it, and a bread-poultice employed. At the expiration of another week this support was removed, the limb bandaged (a pad of lint only being used for dressing) and a stirrup of pasteboard passed under the foot, and continued up either side of the leg. He now got up and walked about, aided with crutches, the foot being supported in a sling. Seven days after this time he began to try and accustom himself to bear slightly on the foot. He soon left off one crutch and used a stick. The

wound was touched with sulphate of copper from time to time, and only covered with lint.

November 6th.—He now walks with a crutch and stick, when going any distance, and walks well. The ankle is almost motionless as regards flexion and extension.

April 10, 1848.—Walks well with a stick, frequently without one; the limb is nearly an inch shorter than the opposite one. Flexion and extension movements of joint increase. *Part xviii., p. 162.*

Amputation of the Fingers and Toes.—If a portion of a finger is to be removed at the articulation of the phalanges, a common narrow, sharp-pointed bistoury is pushed from one side of the finger to the other, in front of the joint, and the flap made; the knife is now laid perpendicularly upon the lateral ligament, then brought across the joint, and the other lateral ligament cut; by this proceeding the joint is at once opened, and nothing remains but to divide the skin posteriorly. In amputating between the first and second phalanges, transfixion is made opposite to the large fold in the integuments in front, and the joint is at once come upon, as the two exactly correspond. The articulation between the second and third phalanges is one line in front of the fold. By cutting into the joint posteriorly, there is always considerable difficulty in getting the knife between the bones, so as to make the flap in the palmar aspect; in consequence of the extensor tendon having been divided, the flexor contracts and drags the phalanx which is to be removed in front of the one which remains. The flap in the palmar aspect being made first, that difficulty is avoided, and the operation is performed with more rapidity and ease.

In removing the whole of the finger, the method adopted is this: The point of the knife is laid on the skin, half an inch above the articulation, carried down straight over it, and then brought by the side of the finger into the large fold in front, and continued upward on the opposite side to join the incision on the dorsum. This incision is performed by one continuous sweep from left to right, without removing the knife. The finger is now pressed well out, so as to put the ligaments on the stretch, the joint entered, and the operation concluded.

Having determined previously to remove the head of the metacarpal bone along with the finger, the same mode of proceeding is adopted, without, however, opening the joint. The incision is commenced on the dorsum, about an inch and a half above the joint, carried straight down, then brought round into the large fold in the palm, and continued upward to where it began; the blade of the knife is now placed parallel with the metacarpal bone, and carried round its head from right to left, and brought back in the reverse manner, and the bone divided by the forceps. By this method there is no cicatrix in the palm, the flaps are smooth and regular; the operation is also quicker in its performance, and leaves a much better and neater covering than by the mode usually followed.

When amputating the thumb and metacarpal bone, Mr. Williamson considers it more convenient to stand on the inner side of the arm. The point of a long, narrow, straight bistoury is entered opposite to the articulation of the metacarpal bone and the trapezium, passed under the adductors, and its point made to appear in the folds of integuments betwixt the thumb and fore-finger, and by cutting

outward a flap is formed; the knife is now laid upon the angle of the incision, between the thumb and finger, and continued over the dorsum of the bone to the part where it was entered to transfix. The thumb is then firmly grasped by the operator, and the soft parts divided down to the articulation, which is now disarticulated with great facility.

For the removal of a whole toe, the same oval method, as it may be called, is adopted. It is here of still greater advantage, as there is no cicatrix left in the sole of the foot to annoy the patient when walking. The metatarso-phalangeal articulations of the small toes are deeply seated in the ball of the foot, and the knife must be carried, by the method usually practised, to the extent of two inches into the sole, to reach the joint, and, on disarticulating the bone, the integuments are notched and cut in a very awkward manner; in the method recommended, these objections are removed.

In amputating the finger, the head of the metacarpal bone should always be removed; but in the toes it ought, if possible, to be preserved, especially that of the great toe, for the purpose of giving greater support in walking. The toes, with the whole of the metatarsal bones, can be removed in the same manner; the great and little toes are those that most frequently require to be amputated; this can be effected by making a straight incision along the dorsum, brought down into the fold in the sole, and terminating in an acute angle near its commencement. The bone is then cleared and disarticulated.

Part xviii., p. 163.

Amputation at the Ankle Joint.—The following modification of Mr. Syme's operation has some advantages. After making the anterior incision from one malleolus to the other, mark out the form of the flap by carrying the knife deeply across the plantar aspect of the heel from the internal to the external malleolus; then disarticulate the joint, divide the tendo Achillis, and turn out the os calcis from the plantar flap by carrying the knife closely around the back and sides of the bone: lastly, remove the malleoli with the saw. This method is more easy and rapid than the usual plan of dissecting the flap from below upward, before disarticulating.

Part xix., p. 131.

Amputation.—In dressing the stump, instead of compresses and bandages, apply two long and broad strips of wetted lint, in a crucial manner, and support them by a circular strip, so as to support and press the flap against the bone.

Part xix., p. 132.

Military Surgery — Mr. Guthrie's Lectures on.—Mr. Guthrie commences some very important observations upon this subject, by considering the necessity of a tourniquet. He says:

As a tourniquet cannot be applied in amputation at the hip joint, nor even at that of the shoulder joint, without doing harm, its inutility is proved in the greatest operations; and recourse should not be had to it in the smaller or less dangerous ones, provided sufficient assistance can be obtained. When the surgeon has only one assistant, he should apply a tourniquet; or even if he should have several bad ones on whom he cannot depend.

There is always more blood lost, and particularly in secondary amputations, when a tourniquet is used, than when the principal artery is compressed by one assistant, and two others are ready to press on the outside

of the flaps, or upon the divided vessels, with the ends of their fingers; the force necessary to prevent the passage of blood through the common femoral, or the axillary artery, being merely that of the finger and thumb, applied in a very gentle manner, or even of the end of the fore-finger of a competent person. I have rarely applied a tourniquet since 1812, and few persons have done more formidable operations under more difficult circumstances.

A tourniquet is useful when loosely applied after an operation, and the attendant should be taught how to turn it, so as to suppress any serious bleeding which may take place until the surgeon can be procured. It may be, although it rarely is, necessary on the field of battle. A thoroughly useful tourniquet can be made in a moment with a pebble and a pocket-handkerchief, or a roller. The great point is to know where and how to apply it.

If after a fracture in course of treatment, the principal artery should be wounded by some accidental motion of the bone, amputation should in general be resorted to. A ligature on the artery higher up would fail, and the operation of seeking for both ends of the injured vessel would cause so much mischief in an unsound part, that the consequences would in all probability be fatal.

When the femur is suffering from a malignant disease, commencing in the periosteum, or its cancellated internal structure, I am reluctantly obliged to say that the removal of the whole bone at the hip joint offers the best, perhaps the only, chance of success. In such cases, the operator has in general the power of selecting his mode of proceeding.

It may be laid down as a principle in all cases of accident, whether from shot, shell, or railway-carriages, that no man should suffer amputation at the hip joint when the thigh-bone is entire. It should never be done in cases of injury when the bone can be sawn immediately below the trochanter major, and sufficient flaps can be preserved to close the wound thus made. An injury warranting this operation should extend to the neck or head of the bone, and it may be possible, as I have proposed, even then to avoid it by removing the broken parts.

The principle being established, as a general rule, in all cases of recent injury, that the femur must be broken at least as high as the trochanter to constitute an imperative case for this operation, the next point of importance relates to the manner of forming the first incisions.

My first successful operation, performed in 1815, was done from without inward, the flaps being anterior and posterior, the artery being compressed against the pubes.

Professor Langenbeck, when lately in London, informed me he had performed amputation at the hip joint, in the Holstein war, several times, and he believed more than once successfully, making the anterior flap by the pointed knife, cutting from within outward, but the posterior one by cutting through the integuments from without inward, as I have recommended, in order to make it of a more equal and proper thickness. One point to be attended to is to leave as little as possible of the internal tendinous structure of the great gluteus muscle, which does not readily unite with other parts; a second, not to leave too much muscle behind; and a third, to remove as much as possible of the ligamentous structure about the joint. The after treatment will be the same as in other formidable cases. The shock, however, of the injury, and of the amputation, will rarely render

blood-letting necessary. Cordials, in small quantities, with opiates and a light nourishing diet, should be given. The wound should be wetted with cold water, and the patient constantly watched.

A protrusion of bone is a disagreeable occurrence after amputation; it will sometimes happen after sloughing of the stump, without any fault in the operator. If, on completing the operation, it is evident the bone cannot be well covered, a sufficient portion should be at once sawn off, and the error remedied.

When the bone protrudes at a subsequent period to the extent of an inch or more, it should be removed by operation, an incision being made on, and down to, the bone, and the saw applied where it is sound. The chain-saw, when at hand, answers well, and some should be supplied for the use of the principal hospitals with every army. The protruded end of bone should be held steadily by pincers, or it may be introduced into a hollow tube, which fixes it firmly.

When the bone is badly sawn through, or split in the act of dividing the last layer, or the periosteum is unduly separated, the end will often exfoliate with the split, which may extend up for three or more inches, causing much suffering, and occupying a great length of time before the stump becomes quite sound. A splinter of this kind may even require to be removed at a late or even distant period, from the nervous irritation and suffering it may occasion.

Wounds of the knee joint, with fracture of the bones composing it, from musket-balls, require immediate amputation; for although a limb may be sometimes saved, it cannot be called a recovery, or a successful result, where the limb is useless, and is a constant source of irritation and distress after several months of acute suffering have been endured, to obtain even this partial relief from impending death. For one limb thus saved, ten lives will be lost; and the sufferer is often glad, after months and years, to lose the limb thus saved, more particularly when the ball has lodged in the articulating surfaces of either of the bones. Amputation at a secondary period, in these cases, does not afford half the chance of success, for many will not outlive the inflammation and the fever which ensue. The amputation should therefore be immediate, unless excision can be substituted for it.

Compound fractures of the patella, without injury of the other bones, admit of delay, provided the bone is not much splintered. If the ball should have pierced the centre of the patella, and passed out in nearly an opposite direction behind, the limb will not be saved. If the ball have struck the patella on its edge, and gone through it transversely, opening into the joint, it will very rarely be saved; but if it be merely fractured, there is hope under the most rigorous antiphlogistic treatment, and delay is proper. A ball will occasionally penetrate the capsular ligament, and lodge in the knee-joint, without fracturing the bone; if it cannot be extracted without opening extensively into the cavity of the joint, and the extraction of the ball is absolutely necessary, amputation had better be performed at first, for it will be ultimately necessary. The condyles of the femur and the lower part of the bone being spongy, a ball may pass through them or between them, and fall into the knee-joint, or it may make a prominence on the side of the patella, without passing out, or immediately interrupting the motion of the leg, for the soldier may walk some distance afterward. The popliteal artery may also be divided in

addition, and either of these cases will render amputation necessary; for the ball must be taken out on the forepart, and the general inflammation of the joint will either destroy the patient in a short time, or, after much distress and hazard, leave him no alternative but amputation. If a ball lodge in the condyles of the femur, within the capsular ligament, and cannot be easily extracted, amputation is advisable; for the limb, if preserved, will not be a useful one. If the ball, on the other hand, lodge without the capsular ligament, and cannot be readily extracted, the wound should be healed as soon as possible; and although it may cause some little inconvenience to the knee-joint, the limb and life of the patient may be saved, as I have seen in many instances, when a continuance of persevering efforts to extract it would have exposed both to great danger. Many cases of wounds of the knee joint, in which the capsular ligament is wounded, and the articulation opened into without injury to the bones, do well, such as simple incised wounds made with a clean cutting instrument. The success attending all wounds of the knee joint depends entirely upon the antiphlogistic mode of treatment being rigidly enforced, and to a very great extent. The limb is to be placed in the straight position, a splint is to be put underneath it, in order to prevent any motion, and cold or iced water is to be applied, especially in summer, to diminish the increasing heat. General bleeding may be had recourse to in sufficient quantity to keep all general inflammatory action in due bounds; but, it is on local blood-letting that the surgeon must principally rely for the prevention of inflammation. Cupping can sometimes be performed with marked effect; but leeches are more serviceable when they can be procured in sufficient numbers; from twenty to forty, or more, may be applied at a time; and whenever the sensation of heat is felt, and is accompanied by pain, they should be repeated until these symptoms subside. The necessity for the local abstraction of blood is so great, that it should never be lost sight of for a moment; for if suppuration take place throughout the cavity of the joint, it is followed, in most instances, by ulceration of the cartilages and caries of the bones. By local and general bleeding, the application of cold, rigid abstinence, and the straight position, a recovery may sometimes be effected; but wounds of the knee joint, however simple, should always be considered of a very dangerous nature, infinitely more so than of the shoulder, the elbow, or the ankle. When a poultice is applied to a gun-shot wound of this kind, I consider it the precursor of amputation. Colonel Donnellan, of the 48th Regiment, was wounded, at the battle of Talavera, in the knee joint, by a musket-ball, which gave him so little uneasiness that he could scarcely be persuaded to proceed to the rear. At a little distance from the fire of the enemy, we talked over the affairs of the moment, when, tossing his leg about on his saddle, he declared he felt no inconvenience from the wound, and would go back, as he saw his corps was very much exposed. After he had staid with me a couple of hours, I persuaded him to go into the town. This injury, although at first to all appearance so trifling, proceeded so rapidly as to prevent any relief at last being obtained from amputation, and caused his death in a few days.

When the nature of the injury renders amputation necessary at or immediately below the tuberosity of the tibia, the operation may be done with safety. Baron Larrey recommended the removal of the head of the fibula in such cases, which I have done with impunity, and made thereby a better stump than if it had not been done; but as the articulating surface

of the head of the tibia does sometimes enter into the composition of the knee joint, and this cannot be known beforehand, the removal of this portion of the fibula is not advisable, neither must the tibia be sawn above the tuberosity, lest the capsular ligament be implicated. As an operation by which the knee joint is saved, it is important, for although the stump is very short, it forms a solid support for the body, and enables the patient to walk without the aid of a stick, and admits of the adaptation of an artificial leg. The skin, in these cases, must be saved, in every direction, by flaps, to form a covering. When in sufficient quantity, the operation may be done by the circular incision, as much muscle as possible being saved, to aid in forming a covering on the under and outer sides. The posterior tibial artery will be found to have retracted behind the head of the bone, from whence it, or others which may bleed, must be drawn out. The nerves must be cut as short as possible.

A musket-ball will seldom pass through the foot without injuring a joint of some kind, or wounding a tendon or nerve; and the injury to the fascia, which is very strong on the sole of the foot, and frequently covered by much thickened integument, is always attended with inconvenience. The extraction of balls, of splinters of bone, of pieces of cloth, and the discharge of matter, become more difficult, and often cause so much disease as ultimately to render amputation of the foot necessary. Tetanus is a frequent consequence of these injuries, and is a disease, in its *acute* form, certainly remediable by no operation or medicine at present known. Amputation has always failed in my hands, although it was strongly recommended by Baron Larrey. The operative surgery of the foot should be done as soon after the injury as it can be conveniently accomplished; for a large, clean, incised wound is a safe one, compared with a torn surface and splintered bone, with extraneous substances, of much less extent; and as a ball lodged in the foot is always very dangerous, great attention should be paid in the examination of even slight wounds. A cannon-shot can seldom strike the foot without destroying it altogether; it may, however, strike the heel, and destroy a considerable part of the os calcis, without rendering amputation necessary, if the ankle-joint be untouched; for by due attention in removing the spicula of bone at first, and by making free openings for the discharge of matter in every direction in which it may appear inclined to insinuate itself, the limb may be preserved in a useful shape.

Wounds from cannon-shot injuring the fore part of the foot are better remedied by amputation at the joints of the tarsus with the metatarsus, than by sawing these bones across; but when the injury affects only one or two toes, they may be removed separately, recollecting that it is of greater importance to preserve the great toe than any other, and this toe is worth preserving alone, when any of the others would be rather troublesome than useful. Musket-balls seldom commit so much injury as to require amputation as a primary operation, although they frequently render it necessary as a secondary one. The splinters of bone are to be removed, the ball and extraneous substances are, if possible, to be taken out; and if the bones, tendons, and blood-vessels are so much injured as to render the attempt to preserve them useless, amputation is to be performed; but if the preservation of the limb be thought practicable—and it generally will be so in wounds from musket-balls—the attempt must be made under the most rigid antiphlogistic treatment, the local application of leeches and

cold water from the first, and with free openings for the subsequent discharge. Musket-balls seldom injure the metatarsal bones so as to require their removal with their toes, and under the treatment above mentioned, these wounds will in general be healed without further operation. Wounds from grape-shot occasionally render the removal of the metatarsal bone of the great toe at the tarsus necessary, although much should be done to save it. The little and adjacent toes are also sometimes removed at the tarsus, the middle ones but seldom, as it is not an easy operation to perform, in consequence of the naturally close attachment of these bones, and the additional compactness they have acquired from the pressure of the shoe. Hemorrhage from the arteries of the foot authorizes in a very slight degree amputation, even when superadded to other causes; for the incisions necessary to secure the bleeding vessels will not, in general, add much to the original injury, unless they are very extensive; on the contrary, they will render the wound less complicated and more manageable.

Amputation of the foot, leaving the astragalus and calcis, may, in certain cases of injury anterior to these bones, be performed with advantage, care being taken to make the under flap so large that the line of cicatrization may be on the upper and anterior edge of the stump, rather than transversely across the face of it, in order to render it firmer and better able to resist and sustain any pressure which may be applied to it.

As the posterior tibial artery must be divided, the preservation of the anterior one is essentially necessary; the success of the operation depends upon it. This artery, accompanied by its vein and nerve, lies close upon the astragalus; the artery may be said to be even attached to it, a point requiring the greatest attention in dissecting out the bone without injuring this vessel, which is seen under the scalpel.

Amputation of a single metatarsal bone, on the outside or inside of the foot, is to be done by an incision round the root of the toe, terminating in a line on the outside of the foot, which is continued down to the joint of the tarsus. The integuments are turned back above and below from the metatarsal bone, which is to be dissected out, with the toe attached to it, and the flaps brought together, so as to leave but one line of incision. In military surgery there is always a wound; and when the removal of the bone is necessary, it is in general an extensive one, and with loss of substance, so that a covering cannot be saved in this way, especially on the upper part of the foot, where the ball or piece of shell strikes. The surgeon, therefore, must be prepared to look for his covering on the under part, where he will occasionally not be able to procure it in sufficient quantity, and it must not be forgotten that the neighboring parts will often be injured. The object must then be to save the integuments from such parts as are uninjured, so as to cover in the wound as nearly as possible when the bone is removed. In doing this the first incision should commence at the upper and inside of the toe, and be carried round so as to separate the toe from its attachment to its fellow. If the injury be entirely on the upper part, the continuation of this incision must be so regulated as to form the whole of the flap from below, and the commencement of it above must be continued round the injured part, so as to meet the lower end near the articulation of the bone with the tarsus, and *vice versa*. If the ball have gone directly through, destroying the integuments above and below, the incisions must surround the injured part in such manner, on the upper and under side of the foot, as to allow the flaps to

be formed in every other part, except where the injury was inflicted, and from whence granulations must arise. By saving skin everywhere else, the wound will be much diminished in size, will heal sooner, will be less liable to suffer from external violence, and less obnoxious to the subsequent pain, which generally at intervals attends wounds of this kind.

An upper extremity should not be amputated for almost any accident which can happen to it from a musket-shot; and there is scarcely an injury of the soft parts likely to occur which authorizes amputation as a primary operation.

If the head or articulating extremity of the bone entering into the composition of the shoulder joint be merely or slightly injured by a musket-shot, the arm ought to be saved with some defect of motion in the joint. The wound should be enlarged in the first instance, to allow of a sufficient examination with the point of the finger, and any loose pieces of bone should be removed. Inflammation is to be restrained within due bounds until suppuration has been established, when, if a clear depending opening should not exist for the discharge of the matter poured out, it should be made, and any loose portions of bone removed. The principal points to attend to are, the prevention of sinuses around the joint, by the formation of dependent openings, position, perfect quietude, due support, the methodical application of bandages, and occasional mild stimulating injections into the wound. A simple incised wound penetrating the joint, and even injuring the bone, does not call for any immediate operation. An attempt should be made to effect a cure by the first intention, which can only be effected by means of a proper position and support.

If the head of the bone be much splintered, or if a ball have gone through it, that portion should be sawn off; for a part thus injured has often been a source of great inconvenience and suffering for many years afterward—during, in fact, the remainder of the life of the sufferer; which misery would have been avoided by the excision of the bone in the first instance—an operation which ought, in fact, to be done even at a later period, if it has not been performed at the time when the injury was received.

When the splinters extend far into the shaft of the humerus, it may be proper to amputate the whole extremity, especially if the great artery be also wounded; but the shaft is seldom broken in such accidents to any great extent, and amputation should be confined almost to injuries from cannon-shot or shells, or heavy machinery, destructive of the soft parts as well as of the bone.

When the injury done to the upper arm is so extensive that it cannot be saved, although the head of the humerus is not injured, the amputation should take place immediately below the tuberosities, and not at the joint, which latter operation always renders the shoulder flatter, and the appearance of the person more unseemly, than when the head of the bone is left in its place.

It will frequently happen that the arm may be irrecoverably shattered, and the thorax partake in a less degree of the injury, there being apparent only some slight contusion or grazing of the skin; if low down, the elasticity of the false ribs may have prevented the integuments being much injured in appearance, although the blow has been violent, yet the force of the large shot may have ruptured the liver or spleen. If higher up, it may perhaps fracture the ribs, in addition to a more severe contusion of

the integuments. When these accidents occur, the symptoms arising from the wound or contusion of the trunk of the body are to be first considered. If they do not indicate a speedy dissolution of the patient, or the prospect of such an event in two or three days, the operation ought to be performed, and a chance of recovery given the sufferer, which he would not have, the arm being retained, and the injury of the chest remaining the same. The danger to be apprehended in the more favorable cases is from inflammation, and this will be rather diminished than increased by the operation; the danger of deferring which is manifest and certain, whilst the injury committed in the thorax or abdomen is not ascertained, and its effects may be obviated. If the termination should be unfavorable, it can only be a matter of regret for the sake of the individual, and not for the non-performance of a duty. If the cavity of the chest be laid open, or several ribs beaten in, or a stuffing of the lungs take place from a large ruptured blood-vessel, all of which circumstances are obvious, and cannot be mistaken, the operation would, in all probability, be useless. A hemorrhage of short duration, or the expectoration of blood in moderate quantities, although a dangerous symptom, is not to be considered as depriving the patient of a reasonable chance of life, for it frequently follows blows from more common causes, and from which many people recover. If the operation be delayed to ascertain what injury may have been done to the chest, from the symptoms that will follow, the danger resulting from both will be increased; and even when it is ascertained that there is but little mischief existing in the thorax, the operation can no longer be performed with the same propriety, in consequence of the inflammation which has supervened; and the patient will probably die, when he would have recovered under a more decided mode of treatment.

A round shot or flat piece of shell may strike the arm, after rebounding from the ground, or when nearly exhausted in force, without breaking the skin, or only slightly doing it, yet all the parts within may be so much injured as not to be able to recover themselves: the bone may be considerably broken or splintered, the muscles and nerves greatly contused. The injury may not, perhaps, be quite so extensive. The bone may be merely fractured, and yet the soft parts will often be so much destroyed as not to be able to carry on their usual actions. A ruptured blood-vessel may, with an apparently slight external wound of this nature, pour out its blood between the muscles, and inject the arm to nearly double its size, all of which are causes that render an operation necessary, and require decision, for inflammation will, and mortification may, ensue in a short time, when the most favorable moment for operation will have been lost.

Amputation at the Shoulder Joint is an operation of little surgical importance. The fear formerly entertained of loss of blood has passed away, and every surgeon now knows that if he should happen to cut the axillary artery unintentionally, it can be held between the forefinger and thumb, without difficulty or danger, until a ligature can be placed upon it. No accomplished surgeon of the present day should give himself the least concern about compressing the subclavian artery. It is, on the contrary, better, when the arm is raised from the side preparatory to entering or using the knife, that the surgeon should then feel the pulsation of the artery in the axilla, that he may the more easily avoid, and subsequently command it. The axillary artery does not throw out much blood at each pulsation, and a little pressure with the end of the forefinger will always

prevent bleeding until the surgeon is prepared to take hold of the vessel with the tenaculum or forceps.

The great point to be attended to in performing the operation is, to save skin to cover the stump. The directions, therefore, which are usually given for doing it after any particular method, can only be occasionally useful, for the surgeon may not always be able to select the parts to be divided or retained. In cases of malignant disease of the bone and periosteum of the middle of the arm, the operation should be for the removal of the whole of the bone at the joint, and not the amputation of it below the head, although the appearance of the integuments, and of the bone itself, would seem to encourage the attempt to preserve the roundness of the shoulder. In such cases the removal of the extremity at the joint may be done by any one of the many ways which have been recommended for its performance. In none should the acromion or coracoid processes be exposed, unless previously injured. Neither is it necessary to lose time, or to give pain, by depriving the glenoid cavity of its cartilage; but it should always be borne in mind, that if the nerves are not shortened after the removal of the arm, they may be included in, or adhere to the cicatrix, and cause, during a long life, much distressing pain to the sufferer.

Amputation at the shoulder joint, performed immediately after the receipt of an injury, is now a very simple operation.

As a *secondary* operation, or done at a later period, when the parts are all impacted together, it is somewhat less so. In both stages it is absolutely necessary to remember—1st, that except in cases of disease, and not of injury, the shaft of the bone must be broken; and that *all* the directions usually given for rotation of the arm inward and outward during the operation, are *unnecessary cruelties* not to be attempted with a broken bone; 2d, that the arm should always be raised from the side and supported by the hand of an assistant, who can feel, if he pleases, at any time of the operation, the pulsation of the axillary artery; and all operative methods are condemned, in which this precautionary measure is not the first step.

Amputation of the Arm immediately below the Tuberosities of the Humerus is similar to amputation of the joint, which, in many cases it is intended to supersede.

Excision of the Head of the Humerus.—The point governing the *modus operandi* of this operation is, and ought to be, the fact that under the most favorable state of recovery which can take place, the shoulder joint usually becomes so stiff that its ordinary motions may be considered to be lost. Operative processes which have for their principal object the sparing of the deltoid muscle are unnecessary, for, if spared, it is as useless as if it had been cut; and it seems to have been forgotten that, when cut, it reunites, and becomes nearly as strong as before it was injured. It is the joint which cannot be moved, not the muscle which has lost its power. I prefer, therefore, in doing this operation, where the injury will permit of it, to make a *short* crescentic flap by an incision across the anterior part of the shoulder, as in the operation of amputation, which, on being turned up, leaves the joint exposed. The edge of the knife being applied to the head of the bone in a line below, but immediately under the acromion process, divides the capsular ligament, and with it the long tendons of the biceps, on which the arm drops from the socket, or glenoid cavity, and

allows the finger to be introduced, when the three muscles inserted into the great tuberosity may be cut through, and the sub-scapularis, inserted into the small tuberosity, should also be divided. The head of the bone is then readily brought out, and may be readily detached from any surrounding connections, and sawn off with little or almost no loss of blood. The elbow is to be supported, so as to bring the end of the sawn bone in apposition with the glenoid cavity. The flap may be allowed to unite with the parts below as soon as it will, the shot holes, if any, being in general sufficient to allow of such discharge as may be necessary.

In cases, of *recent* injury, some aid will be obtained in keeping the sawn end of the humerus in apposition with the glenoid cavity, by not dividing the long tendon of the biceps. This must be done by dissecting it out of its groove in the humerus, between the tuberosities, and by cutting through the capsular ligament vertically, so as to follow it up to its attachment to the upper edge of the glenoid cavity, when it is to be drawn aside with a blunt hook, until the operation has been completed: a proceeding difficult of accomplishment in old cases of disease or injury, and in them not necessary nor advisable.

Whenever the head of the humerus is broken, with even considerable injury to the soft parts around, it will be always better to saw off the broken part of the bone in the first instance, and to retain the remaining portion as closely as possible in apposition with the glenoid cavity. The suffering will in the end be less, and the cure be effected, in general, without the loss of the arm.

If, from some complication of injury, the axillary, or other artery should give way during the treatment, the extremity is not to be amputated. The artery is to be secured by one ligature applied above the opening in it, and another below it; the surgeon always bearing in mind the fact, that the proper way to get at the axillary artery is by cutting *across* the fibres of the pectoral muscle, and not in the direction of them; and that the ligature of the subclavian is not to be resorted to until nothing else remains to be done by which the hemorrhage is likely to be suppressed.

Amputation of the Arm by the common circular incision should only be practised in the space between the lower edge of the insertion of the pectoralis major and the elbow joint; and rarely in cases of injury from musket-balls. No common flesh-wound, made either by cannon or musket shot, even including a division of the artery, absolutely demands this operation, the bone being uninjured. If, in addition to such a destructive flesh-wound, the bone be broken, or if it be mashed with the muscles by an oblique stroke of a round shot, or the fore-arm be carried away or destroyed, it is admissible.

Ereision of the Elbow Joint.—An incised wound into the elbow joint, of moderate extent, cutting off with it a part of the condyle of the humerus, or the head of the radius, or a part of the ulna, demands the removal of the injured piece of bone only. The fore-arm should be bent and the antiphlogistic treatment fully carried out. A ball fracturing the olecranon, or other portion of a single bone, although opening into the joint, does not immediately require any operation.

If a ball should lodge in the lower part of the humerus, or in either of its condyles, it should be removed, if necessary, by the trephine, or other appropriate instrument.

When the articulating ends of the humerus, radius, and ulna are wholly or in part injured by a musket ball, it was formerly the custom to amputate the arm, in such instances of great mischief—an operation which should be superseded by that of excision of the joint, by which the forearm will be saved, and considerable use of it retained.

Amputation of the Fore-arm is seldom required after wounds from musket balls. The bones can be readily got at, and large pieces removed with ease. The arteries can be cut down upon and secured without difficulty, except at the upper part, and even there with some little sacrifice of muscular parts, which are not to be spared. The fascia may be divided freely in every direction, and as mortification from defect of nourishment rarely takes place in the fingers, as it does in the toes, when the great arteries are injured, every effort should be made to save a fore-arm, however badly it may at first appear to be injured.

The flap operation is to be preferred to the circular, particularly when a little above the wrist; to which operation Baron Larrey and the surgeons of France particularly objected during the late war. Having done it most successfully since 1806, however, it is recommended as preferable to any other, even when the injury admits of it being done near the carpus. When the nature of the injury does not admit of two equal flaps being formed, it must be done by two unequal ones, or even by one, it being important for the fixing of an artificial hand or other help, to have a long stump.

When the operation is to be performed above the middle of the arm, it may be done by the *circular* incision.

In all Injuries of the Hand, the value of a thumb and a finger, or of two fingers, or even of one, should be borne in mind, and no part should be removed that can be saved, and appears likely to be of use. When cannon-shot, large splinters of shells, or grape-shot have struck the hand, amputation will often be necessary, but the foregoing precept should never be forgotten.

A musket-ball fairly passing through the hand, generally fractures two metacarpal bones, although a small ball may pass between without breaking either. The wounds should be enlarged, and the broken ends of the bones sawn off, or the splinters removed, and the points of bone smoothed off, the tendons to be carefully preserved, and vigorous antiphlogistic measures adopted. The tendency to tetanus or trismus will be best obviated by such measures, the incisions, when necessary, being made in the direction of the bones and tendons. Any hemorrhage which can ensue will be readily commanded by ligature, by torsion of the vessel, or by a small graduated compress and bandage, when these are inapplicable.

When one or more fingers are destroyed, and the metacarpal bones injured, they are to be sawn or cut off, but not removed at the carpus, although an opening into the joint of the carpus will generally do well, if skin can be saved to cover it. In all cases of amputation of one or more fingers, the metacarpal bones, if injured, should be left as long as possible, and particularly that of the index-finger, when the thumb remains. In all cases it is better, if possible, to leave the heads of the metacarpal bones in their places, rather than open into the joint of the carpus, if it can be avoided. If the articulating heads must come out, a strong, thin scalpel is to be pushed in between the bones, the ligaments cut through above,

below, and at the sides, and care should be taken in removing one or two of these bones, not to dislocate the others, and the joint should be covered by a flap or flaps made for the purpose, the sides of the remaining fingers being covered in a similar manner. This succeeds admirably, when the two outer bones and fingers only are taken away.

The *phalanges* of the fingers may be removed by making a flap from the upper or under part, or from both, or from the sides. The square flap from the upper part of the finger is preferable, when the joint with the metacarpal bone is to be operated upon, the commencing points of the flap being united by a transverse incision on the under part of the joint. It should be recollected, that in all these incisions the larger end of bone belongs to that which is not removed, as may be shown by bending the finger, and that the ligamentous attachment between the metacarpal bones, connecting a middle one to its fellows on each side, should be cut through, when the joint will be easily dislocated. Attention should be paid to the division of the lateral ligaments in the removal of any of the bones of the fingers.

Professor B. Langenbeck has operated in some instances, and he says successfully, without the loss of the finger, by sawing off, in the first case, the articulating ends of the first phalanx and of the metacarpal bone of the fore-finger, in consequence of an injury from a rotating piece of machinery; in another, the ends of the first and second phalanges of the middle finger after a severe laceration; and in a third case, by sawing off the end of the second phalanx, and removing the whole of the bone of the third of the fore-finger from the soft parts, leaving the nail; the man recovering with a shortened but useful finger. In all these cases, the flexor and extensor tendons were, from the first, uninjured.

M. Langenbeck has also removed the metacarpal bone of the thumb; a new bone as a substitute being subsequently formed in its place, although the periosteum had been removed with it, which, however, he is always desirous of separating from the bone, and leaving behind, if possible, although he does not consider its remaining in the wound to be essentially necessary for the reproduction of the bone. To do this operation, he directs an incision to be made along the whole length of the bone toward the palmar aspect, thus avoiding the tendons. Then free both articulating extremities, and separate the soft parts from the body of the bone.

If the thumb were to be left to itself, it would be drawn inward toward the palm and shortened, but this is to be prevented by a splint and apparatus to keep the thumb extended until the wound is healed.

But little reliance can be placed on the means indicated for separating the periosteum from an otherwise healthy bone after an accident. When bones are softened by inflammation, it may, perhaps, be done.

Part xxvi., p. 141.

Secondary Amputations.—According to Mr. Guthrie, these are not so successful in military as in civil hospitals, because in the former they generally take place within a short time after the primary operation, while the parts are still in a very irritable condition. Besides, the inflammation of the veins and sloughing of the stump are in some degree dependent upon

the season; viz., the autumn, in which military operations are usually conducted.

In secondary amputations in parts which have partaken of the extensive irritation which accompanies the original injury, a larger portion of the flaps will require to be preserved, although the integuments and muscles cannot be said to be unsound. In other words, the bone must be cut shorter, or the stump will be conical and bad, and particularly if sinusses containing pus are found to run up between the muscles, or between them and the bone itself—a state very likely to give rise subsequently to caries.

In sawing the bone, it may be again stated, the point of the saw should incline downward, and when two-thirds of the bone are divided, it should be made to cut perpendicularly, whereby the *side* next the operator is the last part divided; and the hazard of splintering the bone at that moment will be avoided, particularly if the limb to be removed is held with great steadiness.

In secondary amputations, twice, nay three times the number of arteries will bleed as in primary ones. In the thigh, the femoral artery should be drawn out with a tenaculum or spring forceps, and tied firmly with a single thread of dentist's silk, one of the two ends being cut off close to the knot. The smaller the vessel, the smaller the thread required. Torsion or twisting the smaller vessels, so as to rupture their inner coats, answers very well in cases in which many small ones bleed. When a nerve is known to accompany an artery, it should be carefully separated from it.

If bleeding should continue from above the ligature on the extremity of an artery, it is generally caused by some small branch given off from it, and which has been cut so close to the trunk of the vessel as not to have been observed. In this case the artery itself is to be drawn out by the tenaculum or spring forceps until the bleeding point can be seen, and a ligature placed above it, when the piece below should be cut off with the first ligature applied. This inconvenience will be in general avoided by taking care to divide the principal artery at one stroke of the knife, and with it half an inch at least of the surrounding substances, if the operation is done by the circular incision. If by flaps, the extent of the exposed arteries should be carefully examined, and the ligature applied at the highest point of exposure, when all below should be removed.

When a tourniquet is used, and applied close to the incised parts, it often prevents, even when loosened, the principal vessel from being found, from having pressed on the ends of the muscles. If one is used, it should be removed as soon as possible after the principal artery has been secured. The repeated tightening and loosening of the tourniquet will cause more vessels to bleed in the end, and more blood to be lost, than if it had not been used, and it ought not to be resorted to when good assistance is procurable. In cases of this kind, in which the stump may not cease to ooze, the circulation being good, and sponging with cold water is not effectual, the wound should not be finally closed for two, four or more hours, until the oozing has ceased, and the parts can be freed from the coagulated blood, and brought together.

In cases in which union is not expected to take place, both ends of the ligature should be cut off; for union is not to be desired of the external parts in many instances of secondary amputation, particularly after serious

injuries; the inflammation consequent on which has in some degree implicated the structures divided in the operation, rendering them less liable to take on the healthy action of adhesion. The soft parts should be simply approximated by two or more sutures, the edges of the wound having a piece of lint between them. This precaution should be particularly attended to after a great battle, when it is perceived that from the air, the crowded state of the hospital, or the season of the year, the stumps, although they may appear to unite in the first instance externally, do not in reality do so internally.

Part xxvi., p. 163.

Amputation at the Ankle.—Professor Syme states his having performed this operation above fifty times with complete success, the essential point of success being, his preserving entire the nourishment of the flap. As this can only be effected by the anastomosing branches of the integuments, the greatest possible care should be taken not to divide them. To the neglect of this caution Mr. Syme attributes the want of success which has attended some of the London surgeons in performing this operation.

Part xxvi., p. 164.

Amputation above the Knee.—In making the flaps in this operation, Mr. Luke makes the posterior flap by *piercing* and cutting from within outward; but the anterior flap is made in the opposite manner, by carrying the knife in a curved direction antero-posteriorly through skin and muscle down to the bone. The flaps can be thus made with the greatest regularity, exactly to the size best calculated to make a good stump, forming a thick, symmetrical, and clean cushion for the bone.

Part xxvi., p. 165.

Excision of the Proximal Phalanx of the Thumb.—In this case an abscess formed on the palmar side of the first phalanx, which was opened and the bone found to be bare.

Mr. Teale proposed to remove the diseased phalanx, and to leave the terminal one. For this purpose, he made an incision, rather more extensive than the phalanx, along its radial border. The ligaments and capsule connecting it with the terminal phalanx were next cautiously divided; the shaft of the bone was then separated from the surrounding soft parts; and, lastly, it was detached from the metacarpal bone. The thumb was dressed with wet lint, and the patient confined to bed. The case proceeded well, without any unfavorable occurrence.

The disease in this case was caries, and not necrosis; and at the time of the operation what remained of periosteum being adherent, was removed with the bone. The latter circumstance accounts for there having been no reproduction of an osseous shaft. The success of the operation with so unhopeful a form of disease is the more satisfactory. In some cases of diseased metacarpal or phalangeal bones, a genuine necrosis of the shaft takes place, and a thin shell of new bone is formed by the periosteum. The success of an operation is of course much more probable in such a condition than in one of caries.

Part xxix., p. 196.

Amputation by flaps.—If the circumference of the limb be twelve inches, for example, the anterior flap should be three inches, and the posterior six inches long; the knife having transixed the soft parts, so as to make the anterior, or shorter flap, seven inches at its base; and the pos-

terior, or longer flap, five inches. By this method the measured cut surfaces of the two flaps are exactly equal.

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Stumps—Rules for the Formation of.—In the leg, amputation should be performed at the upper portion of the lower third, so that the patient may have a complete command over the artificial limb, without the stump being too long. The leg should not be amputated above the upper third, and where one-third cannot be saved it is better to amputate at the lower third of the thigh; so that a stump may be left of sufficient length and power. A good stump above the knee is far preferable to an indifferent one below. In the thigh the lower third is the best part. As a rule, in all cases, the larger the stump the better, unless, as in the case of the leg, the extreme length might interfere with the mechanical arrangements. The leg should never be amputated in children, but the lower third of the thigh always selected, because the amputated limb ceasing to grow in proportion with its fellow, the knee-joint will in time be elevated some inches above the other, imparting to the gait a peculiarly grotesque appearance.

Part xxix., p. 198.

Thigh—Amputation of.—The longer the stump the better, and, if circumstances warrant, operate at the knee-joint. Progression is greatly improved by the long stump thus left, the limb does not describe the semi-circular curve which it does with a short stump. The walk is altogether better.

Part xxx., p. 113.

After-Consequences of Amputation.—The first and most pressing danger after amputation, says Dr. Hamilton, is hemorrhage. "It may arise from half an hour after the operation to any number of hours or days, till union in the stump is effected. It is this that makes the surgeon careful to have his patient watched by an assistant always at hand. If the bleeding is only trifling, I would have you not interfere; compression on the face of the stump and the application of cold is often sufficient to check an inconsiderable bleeding, which your opening of the stump would only tend to render a considerable one; but should the blood flow freely, the stump be swollen, and clots appear between the spaces of the sticking-plaster, you must open it forthwith, and search for the bleeding vessel. Before, however, the dressings are removed, firm pressure should be applied over the femoral artery, by a steady assistant. This is much better than the tourniquet; it causes the veins to become turgid and add to the bleeding, which sometimes even comes from the femoral vein itself. When you have no one to help you, there is no choice but to apply the tourniquet. Then carefully clean the face of the wound of the clots which you will nearly always see covering it. The blood will now be found to come in three ways: first, in a general oozing from the stump. In this case, if there are one or two spots whence the blood flows with more rapidity, you may take up the vessels; but, in this general bleeding, it is best to cover the part with shreddy lint, and press steadily with your fingers on it for some time. The bleeding will usually stop, or at least that bleeding which comes from small branches, temporarily increased or excited by the inflammatory action which has begun in the end of the amputated limb. Those of larger size will then be more readily found and secured. Then put together the sides of the wound with sticking-plaster, or compress and bandage, giving up all hope of union by the first intention.

"A more serious hemorrhage, though happily very rare, is from the femoral artery itself. This may occur early, from the slipping off of the ligature, from its not having been tied sufficiently tight; or at a later period, when the ligature has been drawn off, but no proper clot or union exists at the end of the vessel.

"The third kind of hemorrhage is from the femoral vein, and is sometimes very profuse. At the time of the operation there is occasionally troublesome bleeding from the femoral vein, which ceases on the slackening of the tourniquet and removal of the tourniquet bandage; or is readily restrained by putting a small compress of lint over the cut end of the vein. Most surgeons dislike applying a ligature round a vein, but if the other means fail this must be done. I removed the leg of a young man below the knee, for disease of the tarsus and ankle-joint; on the twentieth day after the operation, when all the ligatures had come away for several days, he was seized in the middle of the night with violent hemorrhage, not *per saltum*, but in a free flow, and of a dark color. Pressure on the femoral artery did not stop it. All the stump had united except a small portion in the ham, which went like a large fistula high up, and from which the hemorrhage came. Pressure over this part with lint saturated in a strong solution of alum and in turpentine, stopped the hemorrhage, which, however, returned again and again, but was finally completely arrested by laying open the unhealed cavity from whence the hemorrhage came, and laying the compresses over an ulcer in the popliteal vein, from which the blood was seen to flow.

"The smaller ligatures come away about the tenth day; the ligatures on the larger arteries, as the femoral, humoral, or posterior tibial, after the fourteenth, or longer; I have known even a month elapse before the last ligature came away.

"If the wound does not unite by the first intention, its progress is pretty much as follows: for the first two days all goes on well, but the third day you hear that the patient has passed a restless night; he complains of pain in the stump, and his face is flushed, skin hot, pulse quick, and the tongue loaded. After removing the lint dressing, the stump appears swollen and red, and the bandage looks too tight; you slit it up and remove one of the strips of plaster, when the wound at once gapes, no union having taken place, and a quantity of thin, bloody matter gushes out; the patient complains of much tenderness, and can scarcely bear the gentlest compression by the sponge. Two things should be observed; first, not to put too many strips of plaster on, or too tightly, as room should be left for the matter to escape; and second, not to put the bandage on too tightly, or it will cause much uneasiness; let it be applied merely firmly enough to give support.

"*The Bone.*—The usual course is for a lymphic exudation to cover the surface of the bone, which becomes adherent to the soft parts—this is when the greater part of the stump heals by the first intention; when it does not, the surface of the bone, particularly the cancellous structure, throws up granulations, and union by the second intention is accomplished. Finally, the end of the bone is covered by a firm, fibrous material, its edges are absorbed, and it becomes conical. There is, however, trouble from the bone in two ways: first, the action of the saw sometimes seems to kill the sawn surface of the bone; and after the stump has refused to heal for a long time, the centre remaining open and discharging thin mat-

ter, the bone can be felt hard and distinct at the bottom of the wound. At length it is perceived to be loose, and can, with a forceps, be withdrawn through the unhealed opening, or if not, an incision should be made, and it should be withdrawn. It sometimes presents a curious appearance; a perfect flat ring of exfoliated bone, about one-eighth of an inch or less at the end of the bone having become dead or separated entire. Another way is this; you see that the end of the bone is pressing against the upper part of the stump, and that the integument there is strained and tense in consequence; the bone being drawn upward and forward by the action of the psoas and iliacus muscles, while the soft parts are drawn downward and backward, partly by their own weight and also by the powerful traction of the hamstring muscles. You will best counteract these forces by putting a splint of wood, either flat or scored, at the under and back surface of the limb, with a well applied bandage, and the tension against the end of the bone is at once relieved. If you do not do this or it does not answer, the part against which the end of the bone projects and presses becomes white and glossy, then red and painful and very tender, then fluctuates, and finally ulcerates, and the end of the bone can be felt with a probe; but though you would think the bone would exfoliate, it generally does not, but unites by granulation with the neighboring parts, and all goes on well. A stump that unites by the first intention, or, at least, that heals soon, is more likely to be a good plump one; when the healing is tedious from unhealthy action, or diseased bone, no matter how well the operation has been done, the stump will be conical.

"Now, with regard to the nerves—they rarely give any trouble. Nerves in a stump are, as was ascertained long ago by Mr. Langstaff, found, after the lapse of some time, to have bulbous extremities.

"If therefore, you find the ends of the nerves in an old stump ending in bulbs, you are not to consider them as diseased; nor, if any pain has been felt, that they are the cause of that pain; nor can I say that cases where they have been removed by operation have been satisfactory. Stumps are usually not very sensitive; but occasionally, from a constitutional, I believe, rather than a local cause, the most violent pain is experienced,—a pain, apparently the most intolerable, and resembling *tic-douloureux*—absent for a time, but returning in paroxysms of dreadful severity.

"The case of the Marquis of Anglesea, whose leg was amputated at Waterloo, will be familiar to you; nothing that was tried gave him any permanent relief. The great Nelson, also, suffered from this nervous affection, after removal of the arm above the elbow, and many years of his life were rendered miserable by it," *Part xxx., p. 118.*

Amputation of the Thigh.—In the upper part of the thigh the flap operation answers well, but at the lower third, the circular, or a modification of it, is preferable. Mr. Syme often modifies the circular operation as follows: form two short flaps of skin by semi-lunar incisions on the anterior and posterior surfaces—then retract the skin so as to expose two inches of the muscles *above the angle of union of the flaps*, and divide the muscles in front as high as they are exposed, and those behind as low as they are exposed, to compensate for their greater contraction. Take care to retract the muscles an inch and a half or two inches before sawing the bone, as it is not the length of the flaps that prevents the future pro-

trusion of the bone, but *the height at which the bone is divided above the angle of union of the flaps.* *Part xxxi., p. 119.*

Amputation at the Ankle—Prof. Syme's Operation.—Make a transverse incision across the sole of the foot, from the tip of the external malleolus, or a little posterior to it (rather nearer the posterior than the anterior margin of the bone) to the opposite point on the inner side, which will be rather below the tip of the internal malleolus. If the incision be carried further forward, considerable inconvenience is experienced from the greater depth of the flap, the operator, getting into the hollow of the os calcis, cuts and haggles in striving to clear the prominence of the bone. Another incision is then to be carried across the instep joining the ends of the former. In separating the flap of skin from the os calcis, you must cut *parallel to the bone.* This is of the greatest consequence, as the flap is supplied with blood only by those vessels which run through it *parallel to the surface*—consequently if you are not careful you divide these vessels, and deprive the flap of nourishment. In dressing the wound afterward, *be careful to avoid all pressure*, as this will kill the flap. In this operation don't leave the astragalus, but take it away, as it is very likely to be involved in the disease, and even if not carious then, it is very disposed to be so, and you had better remove *all* the bones which are liable to caries, not excepting the os calcis. *Part xxxi., p. 120.*

Amputation of the Leg—Prof. Syme advises this to be done about an inch and a half below the tuberosity of the tibia. Take the head of the fibula or the tuberosity of the tibia as your guide, and make a short, anterior and posterior flap of integument only, entering your knife about a hand's breadth below the bony prominence at the point which is to form the angle of junction of the flaps at one side. Having dissected up the integuments to an inch and a half below the tuberosity of the tibia, divide the muscles behind about an inch lower down, to allow for their retraction, and then saw through the bones as high as the skin has been dissected up. The nicest kind of artificial leg is made of *tin* with a *wooden* pin—something like an inverted quart-bottle without a bottom. *Part xxxi., p. 122.*

Hip Joint—Amputation at the.—Of the several modes of operating, that by a large anterior flap is considered by Mr. Tatum the best, because the artery can be grasped with the flap, by an assistant, before the vessel is divided. The flap falls by its own weight into its proper place, purulent collections escape more readily, and the wound consists of one continuous surface. During the operation the nates of the patient must project over the edge of the table, and the thigh must be slightly flexed on the abdomen: then take a knife fourteen or sixteen inches long, and transfix the limb to form the anterior flap, by making the knife enter about two inches below the anterior superior spine of the ilium, carrying it beneath the vessels to emerge immediately above the tuberosity of the ischium. The limb must now be forcibly abducted and everted, and the capsule opened, when the head of the femur will start out of the acetabulum. The remainder of the capsule is then cut, and the posterior flap made by carrying the knife downward and backward. A good deal depends upon the assistant slipping his fingers under the anterior flap as it is being formed, and compressing the femoral. *Part xxxii., p. 107.*

Painful Stumps after Amputation.—From considerable experience we

know that painful stumps are much more common after flap amputations than circular amputations; in the latter the nerves are cut off short and buried in the stump, while, in long flaps, the nerves are cut obliquely, and are more likely to be pressed upon. When very troublesome you must dissect out the bulbous extremity.

Part xxxiii., p. 147.

Amputation after Injuries.—The main artery of a limb may be suddenly obliterated, or the chief nerve be rent asunder without danger to the vitality of the limb. But if the muscles at the seat of the injury are very much contused, and the collateral channels for arterial as well as venous blood, are involved in the injury, it is more than probable that the limb will fail in nourishment, the indication of which is the loss of its temperature. Several hours, or even a day may be required to determine the affirmative on this evidence. To justify amputation for muscular injury, this must be very great, and the investing integuments not capable of replacement. Undue importance has been attached to exposure of the cavity of a joint and fractures into joints, although these must always be considered as serious complications, yet they often recover with good motion.

Part xxxiv., p. 121.

Amputation through the Knee Joint.—The French have recourse to this mode of operating only in those cases in which the heads of the bones of the leg are fractured into the articulation, but in which the injury has not extended to the femur. In many cases which occurred in the English army the operation performed was not strictly through the knee joint, but the low amputation recommended by Mr. Syme in disease of the articulation. The practical advantages of this are such as would seem to recommend its more general adoption in any future campaign.

The obtaining of a longer and firmer stump, and one to which a false limb can be more easily attached, than when amputation in the continuity of the bone has been performed, is in itself no small advantage, presented by this operation. Few now participate in Liston's opinion of a long thigh stump. The rectus, with its point of insertion remaining entire, is a matter of vast importance to the power of progression. The non-interference with the medullary canal obviates many of the dangers of amputation, according to Cruveilhier; while the extremity of the femur, which is largely supplied with blood-vessels, being retained, there is less risk of exfoliation than when the dense substance of the bone has been opened by the saw. There is little fear but that the flaps will adhere over the cartilaginous extremity of the bone.

Of the many ways of performing this operation, none appear so good as the old one of Hain.

Part xxxiv., p. 126.

New Operation in Surgery—Disarticulation of the Scapula.—The entire scapula, with its processes and glenoid cavity, were removed, in the Royal Infirmary of Edinburgh, on the first instant, by Mr. Syme, on account of a syctic-sarcomatous tumor. The patient, an elderly female, is doing well, and the arm promises to be wonderfully little diminished in usefulness through the absence of the shoulder-blade.

Part xxxiv., p. 128.

Knee Joint—Amputation at the.—This amputation has lately been performed by Mr. Fergusson several times, and he believes that of all the thigh amputations it is really the best, as such a good flap and stump are obtained.

Part xxxv., p. 60.

Flap Amputations—Cut from without inward, but at first only down to the fascia, to allow for the greater retraction of the skin than of the muscles. Separate these superficial flaps from the subjacent muscles to a sufficient extent; then divide the latter by two incisions so as to form flaps. In the after-treatment of the part, Mr. Paget bandages the stump from above downward, the soft textures being at the same time drawn by an assistant over the ends of the bone. *Part xxxvi., p. 124.*

Amputation at the Ankle Joint.—In performing this operation, after making an incision from malleolus to malleolus under the os calcis, at first suggested by Professor Syme, make a straight incision at right angles with the first to the back part of the heel, on the outer side of the foot, a little above and parallel with its outer margin, between, therefore, the point of the outer malleolus and the margin of the foot. By this means the operation is considerably facilitated, and pus does not subsequently collect in the cup-shaped flap. The principal bloodvessels lie at the fore part and inner side of the ankle joint, and beneath the foot. *Part xxxvi., p. 130.*

Turpentine as a Detergent.—We noticed in use at the Dreadnought, the oil of turpentine as a wash for stumps, etc., which may have got coated with plaster or other adhesive material. It is, we believe, also used at several other hospitals for the same purpose. The part is freely washed with tow dipped in turpentine. It does not appear to unduly irritate, but restores a healthy glow to the cutaneous surface, and the patients describe its effect as being pleasant rather than otherwise. *Part xxxvii., p. 267.*

Amputation by a Long and Short Rectangular Flap.—The excellence of a stump is not to be judged by its seamy form and its being not offensive to the sight; we ought to inquire whether it is well adapted to locomotion, by being able to bear a considerable portion of the weight of the body on its end. Now as a general rule, it may be stated that stumps are not able to bear even the slightest pressure on their extremities where amputation has been performed by the circular or ordinary double-flap transfixion methods. Mr. Heather Bigg and Mr. Grossmith, of London, and Mr. Thomas England, of Leeds, surgical mechanicians, who have had extensive experience in the adaptation of artificial limbs, state that pressure can never be borne upon the end of the stump formed by the circular or transfixion methods, on account of the pain produced; and that, as a general rule, the cicatrix is found adherent to the end of the bone.

To procure a more useful stump, and in the hope of somewhat diminishing the mortality of amputations (which in the London and Provincial Hospitals together is nearly one case in three for the last thirty years), at the Leeds General Infirmary amputation has been performed by a long and short rectangular flap. "The size of the long flap is determined by the circumference of the limb at the place of amputation, its length and its breadth being each equal to half the circumference. The long flap is therefore a perfect square, and is long enough to fall easily over the end of the bone. In selecting the structures for its formation, such parts must be taken as do not contain the large blood-vessels and nerves. A flap so formed will be for the most part anterior in position as far as regards the general aspect of the body, but superior when the patient is in the recumbent posture, as during the after-treatment. The short flap, containing the chief vessels and nerves, is in length one-fourth of the other." Thus, if the

limb be 16 inches in circumference, the long flap will be 8 inches by 8, and the short flap 8 inches broad by 2 long. The flaps are united lightly by sutures, one or more of which may be subsequently removed if tension come on. No dressing whatever is required in the early part of the treatment; thus disturbance of the stump is avoided; for in all these kinds of cases the non-disturbance of the plastic process is the chief point on which the future safety of the patient depends. Stumps obtained by this method of operating have a soft mass of tissues, devoid of large nerves, movable over the sawn end of the bone, which enables them to bear pressure on their extremity. This operation has been performed 56 times altogether, with a mortality of 1 in 7. Amputations of the leg for disease show a mortality of 1 in 27: in the London hospitals these amputations are attended with a mortality of 1 in 33.

Mr. Teale strongly recommends the surgeon, on first practising this operation, to mark out the lines of intended incision, in ink, lest the long flap should be made too small.

Part xxxviii., p. 127.

Resection and Excision of the Phalanges.—In appropriate cases, such as caries of the head, ungual phalanx, or of the whole bone, excision of the head, is the proper treatment. In removing the head of a phalanx for disease of the joint, do not use the bone nippers, but a fine watchspring saw, as the parts will heal more rapidly, and take care to extend the parts whilst healing, to prevent ankylosis. Supposing the whole of the ungual phalanx to be diseased, do not amputate, but remove the whole bone; the sides of the tip of the finger should then be slightly compressed against each other, and the part retained in an extended position.

Part xxxviii., p. 141.

Amputation at the Carpo-metacarpal Articulation.—By amputating at the carpo-metacarpal articulation, instead of at the wrist joint, as generally done, you preserve uninjured the motor power of the wrist joint, which is lost in the latter operation; the flexion and extension is perfect, and a useful substitute for a hand may be adapted to it. Mr. Rudall says:

I have performed this operation between the years 1828 and this time, on four different occasions, the results of injuries from fire-arms and machinery. The last case will suffice for the present notice. A boy, aged thirteen years, on the 20th of January of this year, sustained an injury of the right hand, from its passing between two wheels of a powerful machine, by which the fingers and lower portions of the metacarpal bones were literally ground to atoms. The shock upon the system was intense; ten hours elapsed, during which stimulants were freely administered, before I felt myself warranted in operating. I feared the use of chloroform, and proceeded to the operation, which of itself is very simple, and may be done four or five times while describing it once. I made my first flap on the thenar and palmar aspect, commencing on the dorsal half of the articulation of the thumb with the trapezium, carrying my flap so far into the palm of the hand as was well savable; the dorsal flap was not so large. Having divided the integuments of each flap with the muscles, tendons, etc., disarticulation was effected, by bending the hand on the wrist, and separating the articulations from the dorsal aspect of the joint. Ligatures are not necessarily required in this operation, torsion effected with Liston's common artery forceps being sufficient. The flaps were brought together by three sutures, and cold water dressings, which were

the only means resorted to for the perfection of the cure. Duration fourteen days.

Part xxxix., p. 145.

ANÆMIA.

Treatment of Anæmia.—In treating anæmia, Dr. Turnbull recommends the use of remedies which improve the general health and strength of the patient, and tend to increase the quantity, and improve the quality of the blood; these are, the vegetable bitters, the sulphate of quinine, and other tonics, but especially the preparations of iron, which have a powerful effect in increasing the quantity of that constituent of the blood which is deficient in anæmia.

Iron forms the chief part of the hæmatosin which is contained within the external envelope of the red globules; therefore, this is one of the most important medicines by which to increase the quantity of the globules. It is better to give iron in small quantities for a long time, than in large doses for a short time.

The sulphate of iron is one of the most useful and active preparations, and it may be given in the form of pill, with a bitter extract, such as that of gentian, or a sedative, such as hyoscyamus or conium, or with an aperient powder or extract, such as aloes or rhubarb, or with any of these combined. It may also be given in solution, with a bitter infusion, to which a little sulphuric acid has been added, to hold the iron in solution; or it may be exhibited in combination with the sulphate of magnesia or potass, the solution being acidulated with sulphuric acid. It may thus be given in combination with several of the medicines required in anæmia; and from this circumstance have I used it more frequently than any of the other preparations, and I have also found it one of the most efficient. The sesquioxide of iron is a convenient form when we have to treat anæmia in children, to whom it may be given with compound cinnamon powder, or with rhubarb, or mercury with chalk, where the secretions are deranged. I have also given it to adults along with the confection of senna, bitartrate of potass, and sulphur. This combination possesses several advantages, inasmuch as it increases the secretions from the skin, kidneys, and intestinal canal, while it exerts a tonic effect by the introduction of iron into the system. The compound mixture of iron is a good preparation. It is milder than the sulphate, but it scarcely equals this, and the tincture of the muriate, in efficacy. This last preparation is one of the best, but it does not admit of being administered in so many forms as the sulphate. Several of these preparations seem to me to be often given in larger doses than is necessary, where we wish to obtain little effect beyond the absorption of the iron which they contain into the blood. This observation applies especially to the sulphate and the muriated tincture.

That the efficacy of the preparation is not in proportion to the quantity of iron it contains, is proved by the fact, that many mineral waters are very powerful, though they contain less than a grain in the pint.

The preparations made from combination of iron with the vegetable acids are less efficient than those with the mineral acids, and Dr. Williams

observes that the citrate and tartrate are more tardy in their operation. These are, however, milder in their action.

The potassio-tartrate of iron may be given, along with the bitartrate of potass, when there is œdema of the ankles, or of the cellular tissue generally, and when we wish, therefore, to produce a diuretic effect.

Dr. Williams states, that in many comparative trials he found the iodide of iron, in solution with syrup, the most speedily efficacious of the preparations of iron, and that by its use he has seen females restored from extreme pallidity to a rosy hue of health in less than three weeks.

There are other tonics which are useful in anæmia, such as the vegetable bitters, gentian, cascarilla, calumba, which may be given in conjunction with iron. In many cases, too, where there is much irritability of the system, the preparations of iron cannot at first be borne, as they cause heat of skin and thirst, or sickness, or headache; and when this occurs, it is necessary to promote the secretions, and to give the vegetable tonics with sedatives, in order to prepare the system for the exhibition of iron. Quinine is very useful in many cases:

It is most useful in the anæmia from lactation and from profuse menstruation, and in some of these cases it may be given in solution along with sulphate of iron and sulphuric acid. In most cases of profuse menstruation the preparations of iron are hurtful, and in these, quinine and the shower-bath are preferable.

When there is much depression or irritability of the nervous system, we must administer stimulant and antispasmodic, or sedative medicines; such as carbonate of ammonia, camphor, valerian, hydrocyanic acid, and hyoscyamus. The carbonate of ammonia is exceedingly useful in equalizing the circulation, which is very often irregular in anæmia, and in restoring the temperature of the extremities when they are cold.

The first organ to be attended to will often be the stomach and digestive organs.

When the tongue is pale and clean, without redness at the point, and there is only weight and uneasiness during digestion, with or without eructation, but without sickness and vomiting, and the extreme sensibility of the nerves of the stomach, we may commence with the compound iron mixture, or with the muriated tincture in a bitter infusion, or with pills of the sulphate of iron, constipation being, however, in all cases, removed by some of the means that have been pointed out. In many such cases the preparations of iron in a short time remove the dyspeptic symptoms. In those where the sensibility is greater, where there is severe pain after taking food, and occasional sickness and vomiting, and when there is an extremely anæmic state, it will be well to lessen the sensibility, and restore, in some degree, the tone of the stomach, by sedatives and stimulants, combined with the vegetable bitters, before exhibiting any of the preparations of iron. The infusion of calumba may be given with carbonate of ammonia, or with soda and hydrocyanic acid, or with tincture of hyoscyamus or the muriate of morphia. The addition of compound tincture of cardamom, or of some aromatic tincture, will also, in many instances, prove useful. In this way we shall gradually lessen the sensibility of the stomach, and prepare it for the milder preparations of iron, or for the sulphate, which, in these cases, may be given in the form of pill with hyoscyamus and aloes, and in this way its action will be exerted less upon the stomach than upon the intestinal canal.

Where there is pyrosis, a similar plan of treatment must be adopted, but the secretions from the liver and intestinal canal must be more frequently promoted by rhubarb, magnesia, or carbonate of soda and mercury with chalk, or by colocynth and blue pill at night, followed in the morning by a draught with the infusions of senna and gentian, and the sulphate of magnesia, or tartrate of potass. In the cases of gastrodynia, with pain of neuralgic severity occurring at intervals, especially after taking food, hydrocyanic acid and the muriate of morphia are the remedies most generally useful. The nitrate and the oxide of silver are also of service; and a plaster of belladonna applied over the stomach will often remove, and will almost always relieve, the pain: belladonna, in fact, affords relief from almost all the neuralgic pains of anæmia, and is a most valuable remedy. Stimulating liniments, blisters, and the external application of croton oil, and tartar emetic, may also be tried when the pain is severe and obstinate; but leeches, though they may occasionally give a little temporary relief, should never be employed, unless there be some inflammatory irritation of the mucous membrane.

When there is irritative dyspepsia, with redness at the tip of the tongue, thirst, feverishness, and pain, or rather soreness at the stomach, it sometimes becomes necessary to apply a few leeches, and even to repeat the application in order to prepare the stomach for tonics. The nitrate of potass, and the muriate of ammonia, when given in these cases along with hydrocyanic acid, produce a feeling of coolness at the stomach, and assist powerfully in removing the inflammatory state of the mucous membrane. These medicines may be given at first in water, and afterward in infusion of calumba or quassia, until the stomach can bear the milder preparations of iron in solution, or the sulphate in the form of pill. Milk and farinaceous food constitute the most suitable diet in the early stage of these cases. When, from the severity and persistence of the pain at the stomach, or from the occurrence of hæmatemesis, we have reason to suspect the presence of ulceration of the gastric mucous membrane, our treatment will not differ materially from that recommended for gastrodynia. Chalybeates should still, if possible, be given, and counter-irritation should at the same time be employed. Sulphate of iron, given according to the formula of Dr. Abercrombie, is, perhaps, the best remedy we possess; two grains of the sulphate of iron to be taken three times a day, in combination with five of aromatic powder and one of aloes. Much will also be gained by attention to diet, which should be easily digestible, and at the same time nourishing.

In cases where there is relaxation and increased secretion from the bronchial mucous membrane, the combination of the mineral acids with the other tonics is desirable. I have occasionally found the tincture of cubebs useful in checking the secretion, and have been in the habit of giving it, combined with oxymel of squill and compound tincture of camphor. Counter-irritation should also be used; and the following is the formula I employ: One drachm of croton oil, with four and a half of olive oil, and half a drachm of cajeput oil, made into a liniment, and rubbed upon the chest twice a day. Little modification of the general plan of treatment is required for palpitation of the heart, and for anæmic pulsation of the aorta. The removal of any complications connected with the digestive organs, and the use of chalybeates are generally sufficient to take away these symptoms. The compound galbanum pill may be given to remove flatulence; and when the circulation is feeble, with disposition to faint, the

carbonate of ammonia, with valerian or ether, will counteract this, and tend to restore the circulation in the extremities.

When the nervous system is in a very irritable and easily excited state, so that the slightest noise is sufficient to startle the patient, camphor, in combination with the extract of hyoscyamus, will be found serviceable, or the carbonate of ammonia may be given with tincture of valerian in camphor mixture or a bitter infusion. Sulphate of quinine in solution, along with sulphuric ether, may also be found of use. The vertigo, noises, and headache, are in general removed only by degrees, in proportion as the quality of the blood is improved, and unless unusually severe, they do not require any special treatment. It has been already observed, that in some cases the preparations of iron increase the head symptoms, and when this occurs to any considerable extent, or when the pain in the head is unusually severe, or the vertigo so great as to endanger the patient falling, we must proceed, in the exhibition of chalybeates, in the same gradual manner as where there is much irritability of the digestive organs. These symptoms of congestion are too often treated by depletion with leeches, which frequently increases the pain and feeling of giddiness, and necessarily proves always more or less injurious in a state of anæmia, owing to the removal from the system of a portion of all the constituents of the blood. In these cases, if the symptoms are urgent, or if a mild stimulant plan of treatment with purgatives, and followed by the cautious use of some of the preparations of iron, do not remove the unpleasant symptoms, a blister should be applied to the nape of the neck. This will seldom fail to give relief, and it is the remedy best suited to these cases, as it removes congestion of the vessels by producing depletion, without, however, taking from the blood the part which is deficient in anæmia. I may also observe, that in all cases of congestion, and even acute inflammation, occurring in anæmic persons, we should be sparing in the use of blood-letting, general or local, which is the most direct means of lessening the globules; and we should give preference to the application of blisters. A spirit lotion is a suitable application in cases of pain in the head from anæmic congestion of neuralgia.

The periodic neuralgic pains of the face are to be treated by the external application of belladonna, and by quinine, and the carbonate and other preparations of iron. The pains in various parts of the body, in the spinal column, and in the nerves issuing from it, are to be treated by stimulating and anodyne liniments, the belladonna plaster, and occasionally, blisters. We have still to notice those cases of anæmia in females, where suppressed, irregular, or scanty menstruation forms a prominent symptom. The secretions from the intestinal canal having been first evacuated by means of mild mercurial medicines, the bowels are to be kept open once or twice daily by means of the aloes and myrrh, or compound aloetic pill, or by the compound decoction of aloes.

Dr. Ashwell regards the combination of cordials with aperients as important, and recommends the following draught to be taken twice or three times a week: Powdered rhubarb; carbonate of magnesia; of each half a drachm; aromatic confection, one scruple; cinnamon water, nine drachms; compound tincture of cardamom, one drachm. He recommends that the sulphate of iron should be taken three times a day, in the dose of one or two grains, combined with extract of hops, aromatic confection, and a single grain of poppy or hyoscyamus extract. I frequently

prescribe pills made with sulphate of iron, powder or extract of aloes, and extract of hyoscyamus, of each, one scruple, divided into twelve pills, and one taken three times a day. The superior efficacy of the iodide of iron in many of these cases has been already adverted to.

Where other preparations of iron have been injurious, Dr. Ashwell has found the carbonate in the following combination agree with the patient : Carbonate of iron, eight grains ; powdered ipecacuanha, one grain ; mercury, with chalk, two grains. This powder to be taken once or twice a day. He also recommends, when the general health is somewhat restored, the use of the mustard hip-bath, or the local salt shower-bath, or the injection into the vagina of a drachm of liquor ammonia to a pint of milk. Where the uterus has seemed to require to be stimulated, after the restoration of the general health, I have in many cases found effectual, a draught with turpentine and castor oil.

The slight œdema of the ankles and of the cellular tissue generally, which is occasionally met with in anemia, and chiefly in that form under consideration, viz., chlorosis, requires that the treatment should have especial reference to this complication. Our first object must be to increase the secretions from the bowels, the kidneys, or the skin, or from all of them, so that the specific gravity of the liquor sanguinis may be increased, and the natural relations between this fluid, the chyle, and the fluid of the globules, restored. The aperient best suited to these cases is the compound powder of jalap, alone or with calomel, or the bitartrate of potass. The potassio-tartrate of iron may also be given, along with the bitartrate of potass, to act as a diuretic. The sulphate of magnesia or of potass, given along with sulphate of iron, will act upon the bowels and kidneys, besides introducing iron into the system. Where the bowels have been very obstinate, I have combined a small quantity of elaterium with the sulphate of iron and aloes, in pills. The restoration of the healthy action of the skin is of the first importance in these cases, and the cutaneous transpiration should be promoted by baths, friction and exercise.

In several cases of chlorosis I have seen a single warm bath completely remove the œdema of the ankles.

Part xiii., p. 69.

Diagnosis of Chlorotic Anæmia.—Every instance of anæmia is not always discoverable upon inspection of the tints of the skin, nor upon a survey of the state of the patient as to her embonpoint, since in some anæmic individuals, the cheek and the lips retain a considerable degree of freshness and vivacity of color from a natural exuberant vascularity of the tissues composing them ; and there are not a few anæmic patients who even grow fat during the malady.

Dr. Meigs would test the state of the lungs by asking the patient to make several forced inspirations, in order to discover whether the capacity of the lungs for atmospheric air were at all lessened by disease ; and should she appear to be able to inhale fifty or sixty cubic inches at an inspiration, would have a right to conclude that the air-cells of the lungs were free from pressure or obstruction, and duly expansible. This view might be confirmed by percussion and by auscultation of the chest. Still the respiratory difficulties remain to be accounted for, especially those resulting from every muscular effort.

Dr. M. would next examine the frequency of the pulse, which, in a state of rest, might be sufficiently quiet—as at 70, 80, or 90, beats per minute.

If now the patient be requested to walk to the head of the stairs, and return immediately to her seat, she will, if anæmic, be found to have the pulse greatly accelerated and beating in the most troublous manner, to the number of 120, and even 160 pulsations per minute, while the respiration may amount to 40 and even to 60 per minute. *Part xiv., p. 69.*

Remarkable Form of Anæmia.—At a meeting of the South London Medical Society, Dr. Addison described a form of anæmia which has not hitherto attracted much attention. It affects adult males, and comes on most frequently in an insidious manner.

Its approach is first indicated by a certain amount of languor and restlessness, to which presently succeed a manifest paleness of the countenance, loss of muscular strength, general relaxation or feebleness of the whole frame, and indisposition to, or incapacity for, bodily or mental exertion. These symptoms go on increasing with greater or less rapidity; the face, lips, conjunctivæ and external surface of the body, become more and more bloodless, the tongue appears pale and flabby; the heart's action gets exceedingly enfeebled, with a weak, soft, unusually large, but always strikingly compressible pulse; the appetite may or may not be lost; the patient experiences a distressing and increasing sense of helplessness and faintness; the heart is excited, or rendered tumultuous in its action, the breathing painfully hurried by the slightest exertion, whilst the whole surface bears some resemblance to a bad wax figure; the patient is no longer able to rise from his bed; slight œdema perhaps shows itself about the ankles; the feeling of faintness and weakness becomes extreme, and he dies either from sheer exhaustion, or death is preceded by signs of passive effusion or cerebral oppression. With all this, the emaciation or wasting of the body, though sometimes considerable, is not unfrequently quite disproportionate to the failure of the powers of the circulation—relaxation and flabbiness, rather than wasting of the flesh, being one of the most remarkable features of the disorder.

Dr. Addison next proceeded to give the details of several cases which had fallen under his own immediate observation. In only two of these did the patient recover: the one, a man below the middle period of life, who was looked upon as past all hope, and suspected to be suffering from some latent malignant disease, slowly but steadily recovered under the free use of brandy, but with the singular result of the hair on one side of the head turning permanently grey, whilst the other retained its original brown color. The second case of recovery occurred in a gentleman above middle age: it was by no means far advanced, but was sufficiently well marked to excite alarm. He left his business, quitted London, and sought recreation in the country. After a time he returned, and appeared to have shaken off the disorder entirely. In three cases only was there an inspection of the body after death, and in all of them was found a diseased condition of the supra-renal capsules. In two of the cases no disease whatever could be detected in any other part of the body. Dr. Addison inquired if it were possible for all this to be merely coincidental? On the contrary, he could not help entertaining a very strong impression that these hitherto mysterious bodies—the supra-renal capsules—may be either directly or indirectly concerned in sanguification; and that a diseased condition of them, functional or structural, may interfere with the proper elaboration of the body generally, or of the red particles more especially.

Part xix., p. 38.

Relation between Anæmia and Goitre.—Dr. Begbie states, that in countries where bronchocele prevails in an endemic form, the exsanguined countenances, protuberant eye-balls, and other signs of bloodlessness manifested by those infected with the bronchocele, render it probable that both are effects of the same cause—anaemia.

Bronchocele, we are also told, develops itself rapidly during confinement in childbed, and undergoes a temporary augmentation during the flow of the menses. Dr. Parry has often seen goitre follow functional disorders of the heart—disorders known to depend very frequently on deficient sanguification. It is a form of the *hydropthalmia* of systematic writers—perhaps that form of dropsy denominated *buphthalmus*, or *ox-eye*, which accompanied the enlarged thyroid gland as a concomitant symptom of anaemia, in the cases related by Dr. Begbie. He found this enlargement of the globe of the eye the result of congestion and effusion, intimately connected with that condition of the system in which the blood is deficient in fibrin and coloring matter; and yielding to a plan of treatment adapted to such a state.

This treatment consisted in the use of carbonate of iron with aloetic purgatives, and soothing doses of hyoseyamus; with sea-side residence, full diet of animal food, and exercise in the open air.

With regard to the treatment of anaemia and its secondary disorders, first ascertain the exciting cause; and having arrested or removed this, give the preparations of iron freely, and for a great length of time, with a liberal allowance of animal food, and porter or ale, in preference to wine. Recommend also change of air and travelling.

Part xix., p. 39.

Treatment of Anæmia.—Give nourishing diet, with as much animal food as the patient can bear; let the patient be exposed to the pure air and light of heaven as free and as long as the strength and sensibility will bear; promote the natural excretions by appropriate means; and give tonics, especially iron, the syrup of the iodide, preceded or not by some mild bitter. Employ diffusible stimulants, sedatives and narcotics, external stimulants, rest in the horizontal posture, and warmth to the extremities, when special circumstances point out the necessity for these means. And if the nervous symptoms do not cease with the removal of the anaemia, give the metallic tonics, zinc, silver and copper.

Part xx., p. 32.

Anæmia as a Consequence of Rheumatism.—In commenting on some cases of acute rheumatism at St. Vincent's Hospital, Dr. O'Ferrall stated that he was induced to believe that this disease had a tendency, in its latter stages, to produce phenomena connected with a diminution of the globules of the blood. The attention of Dr. O'Ferrall was first called to the subject by observing that, in cases with endocardiac complications, after the employment of depletion and mercury, a cardiac bruit of a different character from that which originally presented itself, continued to persist, notwithstanding the steady employment of the usual means for subduing inflammatory action. By and by, cases terminating fatally came under his observation, in which, although this bruit was present to the last, no morbid appearances could be detected in the heart upon *post-mortem* examination. Afterward, he found that a rûle musicale in the cervical vessels very constantly accompanied this peculiar cardiac bruit; and he was led to suspect, that after the subjection of the inflammation by

bleeding and mercury, an anæmic condition followed the use of these remedies, which would require a very different treatment for its subduer. He accordingly ordered chalybeates, as in an ordinary case of chlorosis, and found the cervical and cardiac bruits to disappear under the use of this remedy.

This observation is one of very great practical importance, teaching us the necessity of discriminating between those cardiac sounds produced by the participation of the heart in the general rheumatic disease, and those arising from deterioration of the blood. The treatment in the two cases must obviously be of a totally different nature. *Part xx., p. 34.*

Employment of Manganese in Anæmic Affections.—In those cases of anæmia which are not benefited by iron, give salts of manganese. The carbonate or phosphate may be given in the form of pill, to the extent of three or four grains daily; or the phosphate or iodide may be given in the form of syrup, according to the formula. *Vide "Manganese."*

Part xx., p. 35.

Tannin in Anæmia.—Give a grain or two of tannin twice or three times a day, dissolved in water or any simple vehicle, flavored with syrup to conceal the taste. The use of tannin does not prevent the employment of other remedies, such as iron, cod-liver oil, etc., but rather promotes their efficacy.

Part xxi., p. 326.

Chlorotic Anæmia.—In *chlorotic anæmia* especially, give the saccharine carbonate of iron and manganese. This preparation is much more powerful than the simple carbonate of iron. In the *chronic anæmia of children*, the extract of bullock's blood, in doses from ℥j. to 5j., may be given with great benefit. In *infantile anæmia* we may give 15 grains of this extract with three grains of the above double salt with great advantage.

Part xxix., p. 324.

Anæmia.—*Vide* Selections from favorite prescriptions, Art. "Medicines."

Part xxxii., p. 251.

ANÆSTHESIA.

Anæsthesia treated by Electro-magnetism.—This patient had been laboring under a slight leucorrhæal discharge, for which she had been directed to use a cold hip bath every morning. Every time she left the bath there was a loss of feeling in the skin, which gradually subsided in about half an hour; after the twelfth bath, however, it became permanent. She was in good health when Mr. Christophers was called to her, and had taken a walk that day; she had no feeling from her toes upward as far as the water had extended; she complained of not being able fully to evacuate the rectum, and of the urine slowly dribbling away. The temperature of the parts was below that of the rest of the body; numerous remedies were resorted to without benefit, when the application of electro-galvanism was resolved upon.

The method adopted was—first to pass a current down the whole spine for half an hour; then from each side of the sacrum to each foot for half an hour; then from the spine to the abdomen for the same period. At

the end of the twenty-two days the patient was quite restored; no trace of the malady remained. *Part xiv., p. 58.*

Anæsthesia.—Dr. T. Cattell thinks the following principle, being in all cases acted upon in the induction of anæsthesia, would obviate most of the dangers attendant thereon, viz., that no anæsthetic agent should be allowed ingress to the lungs, of a higher specific gravity than the air we breathe. *Part xxiii., p. 340.*

Anæsthesia—Arrest of.—Anæsthesia is a momentary disturbance of the cerebro-spinal system. To remedy it, apply electricity to various parts of the body, especially over the cerebro-spinal axis. *Part xxv., p. 328.*

Action of Anæsthesia.—Dr. Detmold favored the N. Y. Academy with a written exposition of his views of the rationale of the action of chloroform, sulph. ether, and nitrous oxide, the three agents employed for the purpose of producing anæsthesia. He attributes the action of all of them to the production of carbonic acid gas *in the system*. The first two supply the carbon, which absorbing oxygen from the blood, and the last supplying oxygen, which absorbing carbon, in either case carbonic acid is the result, which by its action on the living organism produces anæsthesia. This theory, though not absolutely susceptible of demonstration, is yet apparently based on a logical foundation, and finds a seeming confirmation in a number of well-known facts. *Part xxxvii., p. 263.*

ANÆSTHETICS.

Anæsthetics—Chloroform.—The use of chloroform in operations is not contra-indicated by any state of the patient as to age or constitution, nor by any disease which does not itself forbid the operation. In administering chloroform, always use an inhaler, and watch carefully the effects produced; and do not seek to produce insensibility in less time than two or three minutes. When the margin of the eyelid can be touched without causing contraction of the orbicularis muscle, or even when it causes but slight contraction, any operation can be performed without pain. At this time, as the effects of chloroform continue to increase for a few seconds after the inhalation is discontinued, it is advisable to intermit the vapor for a few inspirations, or to dilute it with more air, so as not to carry the insensibility too far. When the operation is over, do not disturb the patient prematurely, but await the complete return of consciousness. *Part xix., p. 338.*

Dutch Oil.—The chloride of olefiant gas, or Dutch oil, is a safe and efficient anæsthetic. The dose required is smaller than that of chloroform, and its effects are more agreeable. *Part xix., p. 340.*

Anæsthetics.—Bromoform, Dutch liquid, and common coal gas, are safe and powerful anæsthetics; and the latter, as being cheap, deserves a further trial. Sulphuric ether should be given when there is much constitutional debility, or where the operation is likely to be long and tedious, or where it is likely to produce considerable shock and depression. Chloroform, though very agreeable and powerful, requires more care in its

administration than has usually been employed. The principal precautions to attend to in its administration are: not to give too much at once, and not to let the temperature be too high, to take care that the air can pass freely in and out of the lungs—not to give the vapor in too concentrated a form at first—to withdraw the anæsthetic as soon as there are indications of unconsciousness and insensibility being produced—and then to give the vapor much more diluted, so as just to keep up the condition of insensibility.

Remedies for an Overdose.—Remove the anæsthetic; dash a small quantity of water upon the face and chest, possibly alternating with heat to the latter; use moderate interrupted compression of the lungs, so as to change the air in the lungs, and so get rid of the vapor there remaining; or, with the same intention, blow a stream of air, not too forcibly, through a small tube into the larynx for a minute or two. It is important, in the present state of our knowledge, not to attempt to do too much.

Part xx., p. 244.

Dutch Liquid.—According to Dr. Snow, Dutch liquid possesses no advantages over chloroform but such as are connected with its slower action and more persistent effects. It is, therefore, only on a few occasions that its use is to be preferred.

Part xx., p. 300.

Anæsthetic Næo.—This agent, which Dr. Snow has been recently using with great success, and which he believes had not been administered before, is the chlorureted hydrochloric ether. "The substance is called by its discoverer, M. V. Régnault, *l'éther hydrochlorique monochloruré*. It is the first of a series of five bodies which he formed by decomposing muriatic ether by means of chlorine gas in the sunshine. A liquid which is a mixture of these bodies, has been used for some months in Paris by M. Aran, a very zealous experimentalist, as a local application to relieve and prevent pain. Dr. Snow having procured a quantity of this through the kindness of Mr. Morson, chemist, of London, separated the first and more volatile of the liquids by distillation, and he thinks that it possesses some advantages over chloroform."

Part xxiv., p. 349.

Carbonic Acid as an Anæsthetic.—Ether, chloroform, and carbonic oxide determine anæsthesia by robbing the arterial blood of its oxygen, so as to produce carbonic acid, thus making the blood venous. Carbonic acid itself may be respired (if sufficiently diluted with air) with safety. An animal was put to sleep for 87 minutes by it; the sleep was perfectly tranquil; directly the inhalations are stopped the animal awakes. Death has never resulted as yet from this proceeding, as its approach is slow, progressive, and can be predicted for some time by observing the condition of the heart and pupils.

Part xxxviii., p. 260.

Anæsthetic Properties of the Lycoperdon Proteus, or Common Puffball.—Mr. Richardson's attention was first directed to this subject from a friend mentioning to him that bees were sometimes stupefied with the smoke of this fungus before the contents of the hive were removed. They gradually recover from the insensibility, and thus the cruel necessity was obviated of destroying them by the fumes of sulphur. He then commenced a series of experiments, illustrating its effect upon animals. He says:

A gentleman had a favorite dog, which was very old, was constantly

troubled with cough, and had a large and painful tumor over the abdomen. As the owner of the dog wished to have this tumor removed, Dr. Willis thought there would be a good opportunity for trying the anæsthetic power of the fungus during an operation. He therefore kindly undertook to cut out the growth, if I chose to produce narcotism. I did so with the impure smoke of the fungus. The animal was narcotized in six minutes; and the operation, which occupied ten minutes, was done without the merest sign of pain until the last suture was being put in, when wincing took place. Neither the heart nor the respirations seemed much affected in this instance. The recovery was so rapid, that, in six minutes, it would have been impossible to tell, without previous knowledge of the fact, that the animal had been subjected either to narcotism or operation.

I need not occupy time in giving the details of several more similar experiments.

To sum up the results of these experiments: There is, it is evident, a principle in the fumes of the puff-ball capable of causing anæsthesia in animals. The physiological effects brought out by this anæsthetic are also very marked. In a liberal dose, it narcotizes rapidly and effectually, without unpleasant symptoms; and the narcotic effect soon passes off, leaving the animal in perfect health. In diluted doses, it produces intoxication and convulsions; is longer in causing anæsthesia; sometimes excites cough and vomiting, and leaves the animal for a long time stupid and unwell. When it is carried to the extreme, the respirations cease before the beat of the heart. Indeed, in observing animals under the influence of the narcotic, it is only necessary to watch the respiratory movements; if these remain, even though reduced to the lowest, the animal will certainly recover on removing it from the cause of the narcotism. In this respect the narcotic principle of the fungus resembles the Woorali poison.

Experiments with the fungus may be performed in various ways. If the impure smoke is to be used, it is only necessary to let it pass freely into a box, through a hole in the bottom. A large tin funnel fixed, beneath the box in an inverted position, will readily convey the smoke. The box having been filled with the smoke, the animal is placed in it, and the lid is laid lightly on. Narcotism will generally take place in eight or ten minutes, often sooner.

To clarify the fumes arising from the fungus, two small tin funnels are made to fit mouth to mouth, and the nozzle of one funnel is connected with a Wolff bottle containing a solution of caustic potash. Another tube, connected with the Wolff bottle, will convey the clarified fumes away. If, now, a piece of the fungus be placed in a burning state between the funnels, the smoke can either be drawn by the mouth from the exit tube of the bottle through the ordinary double valve apparatus for chloroform, or it can be driven over into a bell jar, by fixing the nozzle of a pair of bellows to the free end of the funnels, and blowing gently. The glass bell into which the vapor is received should be placed on a nicely fitting board, and the animal must be passed into the bell quickly, after it is charged with the narcotic vapor.

Part xxviii., p. 322.

Remedial and Anæsthetic Uses of Intense Cold.—First make a freezing mixture as follows: Pound a piece of ice as big as an orange, and put the material on a sheet of paper; mix this thoroughly, with a paper folder, with half its weight of common salt. Put this mixture into a net of the

size required, and as soon as it begins to melt it is ready for use. The oil is now to be placed upon the part required, and frequently to be raised in order that fresh particles of the mixture may be brought into contact with the skin. The skin is benumbed by this application in a few seconds; it first becomes white, showing that the skin is influenced; if prolonged, the adipose matter under the skin begins to freeze, and the part becomes hard as well as white. The freezing may be extended even to deeper parts if necessary.

Remedial Uses.—In acute lumbago, chronic rheumatism, sciatica, acute rheumatism, except where the head is implicated, ophthalmia, glandular inflammation in the neck and groin, orchitis, erysipelas, painful nodes, neuralgic headache, cancer, etc. *Part xxx., p. 247.*

Amylene as an Anæsthetic.—Sulphuric ether is perfectly safe in whatever way it is used, because the dose of ether occupies so much space in the form of vapor that it cannot enter the system except by degrees, and its effects are necessarily produced gradually. A fatal dose of chloroform, however, occupies a very small space in the form of vapor, and unless largely diluted with air it may act with dangerous rapidity, and the point of safety be easily overstepped. The quantity of amylene vapor which requires to be inhaled occupies a volume intermediate between that of the vapors of chloroform and that of ether. Amylene has the advantage of preventing pain with a less deep stupor than is occasioned by other agents, and a further advantage is the almost entire absence of struggling and rigidity.

* * * * *

Amylene for Children.—1. It is respired more easily. 2. The effect is more rapid. 3. The sleep is more natural. 4. They return more rapidly to their former condition. 5. There is no after inconvenience.

Part xxxv., p. 283.

ANCHYLOSIS.

Effects of Immobility on the Articulations.—Cases mentioned of ankylosis of the patella with the femur, to which naturally there is no predisposition. Hence

1st. It is dangerous to imprison for several months, in an immovable apparatus, the articulations of a fractured limb.

2d. That the joints should be left free to execute movements sufficient to induce the synovial exhalation.

3d. That we should commence gentle motion as soon as the callus is formed.

Part iv., p. 110.

Ankylosis of the Hip and Knee Joints.—Cured by operation. In the first case, the operation was performed on the person of a sailor, whose hip joint was perfectly ankylosed, and the limb so situated as to overlap the unaffected one. The thigh bone was divided with a saw, through the great trochanter and a part of its neck. This being done, the limb was readily straightened, and bony union having been prevented by daily movement of the limb, ligamentous attachments were formed, and an artificial joint resulted. After the lapse of sixty days, the patient stood

erect upon his feet, and finally did well, having a very tolerable use of his limbs.

Second case, a man whose leg was bent backward upon the thigh so as to be completely useless, the knee joint being quite destroyed. The last operation consisted in cutting down upon the thigh bone a little above the knee, and removing a portion of it of a wedge shape with the saw—the base of the wedge shaped portion being anterior and the apex posterior, so that when the leg was brought gradually downward and forward the edges of the two extremities of the femur would be in a tolerable state of juxtaposition, which approximation, however, was not accomplished all at once, but very gradually, and apparently without much force or extension being at any time employed. *Part vi., p. 132.*

Anchylolysis—Peculiar Mode of obtaining.—In cases of diseased joints, attended by suppuration, and also in chronic diseases of the joints, namely, where destruction of the articulation has taken place, and nothing can be obtained (supposing amputation be not performed) but a stiff joint, the best plan is that of freely opening the joint at once. In the first place, the consequences of opening diseased joints are not so serious as are usually represented, but, on the contrary, are so slight as scarcely to deserve notice; in the 2d, the process by which nature cures a joint in which the cartilages are removed by disease, is anchylolysis, but this eventual result demands the absence of cartilage; and lastly, the articulation is placed in the condition of a sinus which has been slit up.

The after treatment consists in fixing the joint in the most useful position, and keeping it steady by bandages, etc. *Part xxii., p. 197.*

Treatment of Contractions of Anchylolysis by forced Rupture.—In true anchylolysis, the callus may be broken up. Langenbeck's plan was as follows: The patient is placed upon his back, and chloroform administered until complete anaesthesia is induced; until, in fact, the muscles cease to offer any resistance. As soon as the muscles become entirely relaxed, the patient is turned round on his belly; an assistant holds the head in a raised position, to prevent respiration being impeded, and to facilitate the further inhalation of chloroform, if necessary.

If the anchylolysis be of the knee (the most favorable joint for the operation), an assistant, or assistants, fix the pelvis, and the surgeon commences gradual flexion, if the joint be in an extended state, or extension if in a flexed state. The patient must be so placed, that the patella of the bent knee rests on the anterior margin of the operating table. The pelvis is fixed by the hands of assistants. The operator then clasps with one hand the femur just above the popliteal fossa; with the other, the leg, just above the ankle, and by alternate flexion and extension, practised with more or less power, according to the nature of the case, restores the mobility and the normal position of the joint. A loud crepitus attends the rupture of the adhesions. Should the strength of one hand of the operator prove insufficient, the femur is held down by an assistant. The operator clasps the leg with both hands, and produces, either by strong gradual pressure, or by sudden jerking movements, the rupture of the more powerful impediment. Even firm osseous bridges are thus made to yield with a loud snapping sound. This was once, in a case of undoubted osseous anchylolysis, so loud as to cause the mother of the patient, who was sitting in an adjoining room, to swoon. If, in course of the operation, the tibia

threatens to luxate backward, and particularly, as is often the case, a consecutive subluxation is already present, especial care must be taken to support the joint by pressure on the posterior surface of the upper end of the tibia. Still, luxation is often unavoidable, its mechanism depending on pathological conditions of the part, which art is unable to change. We refer to those cases where, in consequence of large defects of the inferior and posterior surfaces of the condyles of the femur, consecutive subluxation has supervened during the course of the inflammatory disease. A perfect luxation is in these cases more probable during the violent forced extension, if the patella is so firmly ankylosed with the femur as to present an invincible impediment to the pressure of the anterior surface of the tibia against its inferior margin.

The force to be employed must be regulated by the surgeon himself. In cases of many years' standing, the force required, as might be supposed, is considerable; sometimes the whole weight of the body is necessary, but it must always be applied with care. When the callus yields to the external force, the amount of flexion is preserved until the next trial, the limb being exercised, passively, during the interval. A great degree of flexion is not to be desired at once; and the more cautiously and patiently the limb is managed, the less danger of violent reaction, and the greater probability of success. When managed with due care, the inflammation set up is very trifling, indeed seldom sufficient to retard the cure. Frequently no reaction is perceptible. Every two or three days the patient is again subjected to the same treatment. Sometimes a couple of months are necessary to restore the functions of the joint perfectly, but three or four weeks are frequently sufficient. Although many years have elapsed between the occurrence of the ankylosis and the attempt at restoration, yet in most cases the callus may be broken up, and the integrity of the joint restored. It is absolutely requisite, however, that the patient should exhibit no tendency to scrofula, and this the more especially if the ankylosis be the result of scrofulous inflammation or ulceration.

From the want of exercise of the joint, the limb is usually much smaller than the sound one. Sometimes almost total atrophy of the muscles is the consequence, but a short time suffices to restore them to their original volume.

The after-treatment is based on two indications: the first, to preserve the degree of extension obtained; the second, to endeavor to restore the normal functions of the joint. After forced extension has been practised, the muscles have a decided tendency to return to their former condition. We have seen, that muscles which have been contracted during a space of ten years, are not exempt from this tendency—a fact which sufficiently refutes the opinion of those who assert that muscles under prolonged contraction utterly lose their vitality.

In most cases we have to have recourse to a bandage of gutta percha, or to what is better still, Stromeyer's apparatus for the extension of the knee joint—an apparatus which, in the further treatment, is as indispensable as it is efficacious.

Where a subluxation of the tibia backward existed, the apparatus of Bonnet for extension of the knee joint was applied with obvious success. In the two cases where the luxation was perfect, and in others where it was very considerable, all attempts at reposition proved in vain.

Mr. Lungenbeck has expressed it as his opinion, that the subcutaneous

division of the two lateral ligaments might be of some service in these seemingly hopeless cases.

Should an evident contraction of the external lateral ligament be present, a subcutaneous division which we have several times seen practised with eminent success by Mr. Langenbeck, in the treatment of genu vulgum, is here advisable. In those cases where large defect in the articular surfaces of the external condyles of the tibia or femur exist, every treatment directed against the abduction will of course prove ineffectual.

Part xxviii., p. 161.

Old Contractions and Anchylosis.—Place the patient under chloroform to relax the muscles, then forcibly bend or extend the limb; it will most likely crack, as the ligamentous structures and adhesions are broken through, but there is no danger. The limb must then be put in a splint, kept quiet, and evaporating lotion applied. Generally this plan suffices, though in some very obstinate cases it may be necessary to divide the hamstring tendons before the limb can be straightened.

Part xxxii., p. 137.

Partial Anchylosis of the Hip.—Even in a strumous patient, partial anchylosis, the result of inflammation of the hip joint, may be successfully removed by rupture of the uniting medium, provided the case be favorable. All pain must have ceased and the disease be quite quiescent. In a case operated upon by Mr. Brodhurst, the pelvis being fixed with one hand, the thigh was suddenly flexed, the limb being jerked without much force being used. Very slight pain followed, and passive motion was not commenced till the expiration of eight days. Ultimately the patient entirely regained the use of the leg, when before she was only just able to touch the ground with the toes of the affected limb. The patient was a girl of 13 years of age, light haired, and of a strumous complexion. *Vide Art. "Joints."*

Part xxxviii., p. 130.

ANEURISM.

Popliteal Aneurism.—Recommended, upon opening the sheath of the femoral artery, instead of the usual mode of drawing the saphenous nerve outward and then passing the aneurismal needle, armed with the ligature, between the artery and vein, to pass an aneurismal needle, unarmed and blunt-pointed, so as to avoid wounding, under the whole of the contents of the sheath, and then gradually tilt the nerves over the exposed end of the aneurismal needle, leaving only the artery and vein lying on the needle.

Having insinuated between these the blunt edge of a small probe, remove carefully the needle from its former position and pass it through the space thus made. In this situation the needle may be armed by an assistant and the ligature secured in the usual way.

The artery, in various operations requiring exposure, is not always seen to pulsate. The carotid has been seen to lie so perfectly quiescent after exposure, that a surgeon has thought, from the total absence of pulsation, that it could not be an artery. The whitish-colored vessel which is ex-

posed in these operations is only discovered to pulsate by being pressed between the finger and thumb.

As to the tightness with which the ligature should be drawn, the surgeon should exercise his discretion, and is best taught by experience. It is frequently stated, that the inner and middle coats of the artery should be felt by the operator to give way under the ligature; but in a very great majority of cases this cannot be detected.

In old persons, where the coats are more likely to be indurated or ossified, a less degree of force will of course be proper. *Part v., p. 127.*

Aneurism of the External Iliac Artery—Use of Trant's Aneurismal Needle.—The recovery of the patient in this case shows that a large artery may be successfully tied at the distance of half an inch from the point at which a branch nearly of equal magnitude comes off. Another circumstance connected with this case is the value which attaches to Mr. Trant's aneurism needle, which instrument will be found of essential service where a ligature has to be applied to any deep-seated vessel. When the instrument, armed with the ligature, has been passed under the vessel, a spring hook is gradually projected from the handle by the operator, and passes direct to the point of the needle, where it takes hold of the ligature, which is then drawn up from the bottom of the wound by the surgeon and tied in the usual way. *Part vii., p. 117.*

False Aneurism.—Case cited of a child nine years old, in whom there seemed to be an abscess over the carotid artery at the angle of the jaw on the right side. "Its most prominent point was posteriorly and superiorly at the outer border of the sterno-mastoid. Indistinct fluctuation could be felt, and there was slight pulsation in it immediately over the carotid artery, but on grasping the sides of the tumor no pulsation could be discovered, nor could any be felt inside the mouth." On puncturing this tumor a gush of blood issued out, and Mr. Liston then detected the mischief, and next day determined to tie the carotid artery. The patient ultimately died. *Part vii., p. 154.*

Popliteal Aneurism—Cured by Compression.—Three cases successfully treated, from which it would appear that this plan of treatment has been too hastily abandoned by the profession, probably from the compression employed being so excessive as to render it quite insupportable to the patient. The least possible pressure which may be sufficient to close the vessel should be used, and when this cannot be sustained, it will prove of use to partially compress the artery, so as to lessen the impulse of the circulation. *Part vii., p. 172.*

Simulated Aneurism.—Case of hysteria mentioned, in which there was a strong local pulsation of the aorta, in the epigastric region, simulating aneurism, which disappeared as the general health improved. *Part viii., p. 61.*

Cure of Aneurism by Compression.—The application of well-regulated pressure on the artery, between the aneurismal sac and the heart, recommended.

The pressure should be so regulated that the current through the artery would not be completely arrested, it having been found that a partial current through an aneurismal sac leads to the deposition of fibrin in its interior, and to cause it to fill and become obstructed.

Valsalva's treatment should also be conjoined, viz.: perfect rest in the horizontal position, very low diet, and frequent blood-letting.

Part viii., p. 114.

Aneurism of the External Iliac Artery.—A remarkable feature in this case was the extreme and unusual rapidity of its progress, only three weeks having elapsed from its first appearance, of the size of a hazel-nut, before it occupied the whole of the left iliac fossa, its base projecting considerably below Poupart's ligament inferiorly, and superiorly extending to within less than an inch and a half from the navel, being six inches across from above to below, and six inches and a half from side to side, projecting also from the plane of the abdomen fully three inches.

It was decided to take up the common iliac artery. Mr. Hey describes the *modus operandi* as follows: The patient was placed on his back on a mattress, his shoulders moderately raised. The incision was commenced two inches and three quarters above the navel, and exactly three inches to the left of the median line. This was carried down, moderately curved, to the base of the tumor about six inches, and was afterward enlarged by an angular continuation, one inch and a half in length. The fibres of the external and internal oblique muscles and transversalis being successively divided, the transversalis fascia was readily raised by means of a director, and carefully opened out through the whole length of the incision. The peritoneum now protruded in some measure; it was, however, kept down without much difficulty, and being gently drawn toward the opposite side, I was enabled slowly to insinuate my fingers behind the peritoneum, gradually separating it from its cellular attachment to the parts beneath. The common iliac artery was easily reached, and upon compressing it with the fingers, the pulsation in the tumor ceased at once. A little time was occupied in scratching through the sheath of the artery with the point of the aneurism needle; this being accomplished, the needle was passed under the artery from within outward, armed with a double ligature of stay-maker's silk, waxed. By holding aside the peritoneum and viscera, we now obtained for a moment a view of the artery, and ascertained that nothing else was included in the ligature; this being tied with the fingers close down upon the artery, all pulsation in the sac entirely ceased, and never afterward returned in the slightest degree. The exact position of the ligature was, I believe, an inch below the bifurcation of the common iliacs. The wound was closed with six sutures and strips of adhesive plaster, and over the whole a coating of lint dipped in strong mucilage. Time, twenty-five minutes.

The subsequent treatment was upon general principles.

Particular attention is directed to the situation of the incision, as in this case the operator was relieved from all chance of embarrassment by the chord.

Suggested, that in any case in which it might be advisable, to take the chance of tying the aorta. This mode of doing it will be found in every respect far more safe and facile than that adopted by Sir Astley Cooper.

Part ix., p. 142.

Aneurism of the Aorta.—When aneurism arises from the posterior part of the aorta, we generally want the evidence of a palpable tumor to indicate the disease. When the tumor is resisted in its development by unyielding structures (as is the case when it arises from the posterior part

of the aorta), it produces a peculiar character of pain, which, if not exclusively confined to this disease, exists so much more frequently in it than in any other, as to be enough at all times to awaken a suspicion of aneurism. If this pain be connected with the lower dorsal and lumbar vertebrae, and depend upon abdominal aneurism, there will be bruit de soufflet in the course of the artery.

If the pain be connected with the upper, or thoracic dorsal vertebrae, and be owing to aneurism, it seldom occurs that there is not some difficulty in deglutition, or some obstruction in the respiratory apparatus.

The character of the pain consists in a constant, aching, boring sensation, and a sharp, lancinating pain. To relieve the agonizing pain of aneurism, there is scarcely a limit to the amount to which we may exhibit opium, without producing narcotism. In the treatment of aneurism, low diet should be avoided, as lessening the prospect of a radical cure of the disease, and as increasing a nervous irritability—the constant accompaniment of it. The interval between the fatal termination and the bursting of an aneurism is various, and is much influenced by the importance of the organs which the hemorrhage may affect. If it burst into the pericardium, and compress the heart, such interval will, of course, be shorter than if it compress a less vital organ. If there have been an adhesion between the laminae of the pericardium, the effusion will be more gradual, and therefore the interval will be longer than if no such adhesion existed.

Part ix., p. 175.

Treatment of Aneurism by Compression.—Dr. Bellingham, one of the surgeons of St. Vincent's Hospital, when he first brought this subject before the Surgical Society of Ireland, had only met with three cases in which compression had been employed; that number has now increased to twelve. Of these, eight were treated in Dublin, and in all the cure has been permanent. With regard to this mode of treatment, he says:

The principal improvement which has taken place in the treatment of aneurism by compression, consists in the mode of applying the pressure; that is, instead of employing a single instrument, we employ two or three if necessary; these are placed upon the artery leading to the aneurismal sac, and when the pressure of one becomes painful, it is relaxed, the other having been previously tightened, and by thus alternating the pressure, we can keep up continued compression for any length of time. By this means the principal obstacle in the way of employment of pressure has been removed; the patient can apply it with comparatively little inconvenience to himself; time will not be lost, owing to the parts becoming painful or excoriated from the pressure of the pad of the instrument; and as the pressure need not be interrupted for any length of time, the duration of the treatment will be necessarily considerably abridged.

Some of the success of the improved method of applying pressure must, however, be referred to the improvement of the instrument used.

It consists of an arc of steel covered with leather; at one extremity is an oblong padded splint; the other extremity terminates in a nut, containing a quick screw, to which a pad similar to that of the tourniquet is attached. The principle of this instrument is exceedingly simple, so much so, that the patient can regulate its application himself, and it can be made of every size, so as to compress any vessel within the reach of compression.

The following conclusions embrace, in a few words, the chief things to be remembered on this subject :

1st. That the arteries to which pressure is applicable, being far more frequently the subject of spontaneous aneurism than those to which it is inapplicable, compression promises to supersede the ligature in the great majority of cases. 2d. Pressure has several obvious advantages over the ligature, being applicable to a considerable number of cases in which the ligature is contra-indicated, or inadmissible. 3d. The treatment of aneurism by compression does not involve the slightest risk; and even if it should fail, its employment not only does not preclude the subsequent operation by ligature, but renders the chances of the operation by ligature more favorable. 4th. Such an amount of pressure is never necessary as will cause inflammation and adhesion of the opposite surfaces of the vessel at the point compressed. 5th. Compression should not be carried even so far as completely to intercept the circulation in the artery at the point compressed; the consolidation of the aneurism will be more certainly and more quickly brought about, and with less inconvenience to the patient, by allowing a feeble current of blood to pass through the sac of the aneurism. 6th. Compression, by means of two or more instruments, one of which is alternately relaxed, is much more effectual than by any single instrument. 7th. Compression, according to the rules laid down here, is neither very tedious nor very painful, and can be maintained, in a great measure, by the patient himself. 8th. An aneurism cured by compression of the artery above the tumor, according to this method, is much less likely to return than where the ligature has been employed.

Part xi., p. 141.

Spontaneous Cure of Tubular Aneurism.—Mr. Luke gives the following:

The patient was a stout, healthy man, of temperate habits. About a year before his admission into hospital, a tumor appeared on the upper part of the right thigh, which extended from Poupart's ligament, three or four inches down the course of the femoral artery. Pulsation was strong and uniform over the whole surface. The tumor was compressed with ease, and emptied, but refilled on the withdrawal of pressure. There was no pain, nor bruit, but weakness of the limb of the affected side, which was, however, equal in temperature to the sound limb, and the arteries low down pulsated with equal strength on both sides. It had not increased in size from its first appearance, and for six months produced no uneasiness. Cramp and pain in the groin were then brought on by running, and are since easily induced by slight exercise.

With a conviction that the tumor was aneurismal in its character, it was thought improper to place implicit credence in the patient's statement, that it had not increased in size since its first discovery. He was therefore placed in bed, with the intention of determining by personal observation whether or not it underwent any increase in its dimensions; the determining of this point being necessary to guide the opinion and the advice as to the course best to be pursued in his case. It was thought that the application of a piece of adhesive plaster spread on leather, and of a spica bandage over it, was quite compatible with these intentions. They were accordingly applied over the tumor, March 3d, and not again disturbed until the 8th. On their removal, on this day, it

was found that a considerable change had been effected in the tumor. Instead of being soft and compressible, and capable of being emptied of its contents, it was hard and unyielding, and slightly painful on pressure. It was further observed that its pulsation had entirely ceased, as well as the pulsation of all the arterial trunks of the limb; the femoral, popliteal, and anterior and posterior tibial arteries, having in turn been examined. The foot and leg felt colder to the hand than the opposite, although the thermometer did not indicate any actual diminution of temperature. While collecting information respecting a state of things so unexpected, the patient stated that when the plaster and bandage were first applied, he experienced considerable pain in the tumor for about half an hour, attended by an unusually violent throbbing, which perceptibly raised the bandage. At the end of that time the throbbing ceased, and there had not been any return. The plaster and bandage were reapplied, and the limb was wrapped in wool. On the 22d of March, the tumor was still hard, consolidated, and without any pulsation. There was apparently an obliteration of its cavity, the contents of which had undergone some diminution from absorption. Mercurial ointment, spread on lint, was applied, and the patient allowed to move out of bed. April 2d.—He was walked about, and, he states, with greater ease and freedom than when admitted; but the pain in the calf remained. 19th.—Has left the hospital for about ten days, but, as requested, paid the hospital a visit to-day. He still complained of pain in the calf, especially when going up-stairs. There was almost numbness of the foot at times. The circulation was apparently restored sufficiently for the proper nourishment of the limb, yet pulsation had not returned in any of the arterial trunks. The size of the tumor had undergone very considerable diminution, and the aneurism had been without doubt cured.

[Mr. Luke then notices the indefinite nature of the terms true, false, and diffused, as applied to aneurisms, and thinks they may with advantage be allowed to become obsolete, as others more distinctive may easily be substituted.]

Thus the different kinds of aneurisms, may conveniently be thus designated: 1st, To the most common kind, characterized by the existence of a sac, the term "saccated" may with propriety be applied as simply indicative of that fact, without entering into any speculations as to the means by which the sac is produced. If we wish to make distinctions of the saccated form, we might use the term "traumatic" for those forms of it which are the result of wound. 2dly, There is a form of aneurism characterized by a pretty nearly uniform dilatation of the tube of the artery, of which the case above related forms an example. This, by some surgeons, has been considered not to be aneurism at all; while by others it has been regarded as the true form of that disease. From the circumstances of the tube of the artery undergoing a pretty uniform dilatation, I think that the term "tubular" would not be inappropriate, and would express adequately the kind of disease meant to be designated. 3dly and 4thly, The terms "dissecting aneurism" and "varicose aneurism" are sufficiently expressive of the forms of disease to which they are at present applied, and need no further observation. But 5thly, the term "aneurism by anastomosis," as it involves a hypothesis, may be advantageously changed for "capillary aneurism," as merely conveying an idea that the minute or capillary vessels are the structures affected. Thus we have—

1. Saccated aneurism, including traumatic. 2. Tubular aneurism. 3. Dissecting aneurism. 4. Varicose aneurism. 5. Capillary aneurism; under which terms may be embraced every known variety. *Part xii., p. 155.*

General Principles of Treatment of Aortic Aneurism.—Dr. Chevers considers the following to be the chief general indications which it is necessary to fulfill in conducting a rational plan of medical treatment in cases of aneurism of the aorta. To encourage, as much as possible, the deposition of thin layers of plastic coagula within the aneurismal sac; to render the circulation through the visceral arteries, general capillary system, principal venous trunks, and lungs, as free as possible; to diminish, as far as practicable, the volume of the circulating fluids, but in such a manner as to reduce the proportion of their watery constituents without impoverishing the fibrin, or producing debility in the system; to maintain the muscular power of the heart.

Valsava's plan of treatment was calculated to prove eminently beneficial under the direction of able surgeons, and even to obtain a cure; but when practised by the incautious and unscientific, instead of tranquillizing the system, etc., it had the directly opposite effect, "impoverishing the blood, rendering the heart weak and irritable, and exchanging the probability of a sudden death for the certainty of a painful and lingering one."

The only natural process by which the cure of aneurisms of the aorta can be effected is, of course, by procuring the obliteration of the sacs by firm layers of adherent coagulum. In aneurisms of the limbs it appears to be merely sufficient that the sac should become completely plugged with clots, it matters little of what form, providing only that they be firm enough entirely to prevent the flow of blood through the diseased part, and to divert its course to the collateral arteries; but in aneurisms of the aorta, or, at all events, of its upper portion, a far more delicate process requires to be effected, as here the sudden formation of loose coagula in an aneurismal sac will always be liable to occasion rupture of the walls of that cavity, for when the pouch has already become filled to distention—the passing current of blood still maintaining its pressure upon the mouth of the sac—every additional drop of fluid added to its contents will begin to act upon its walls with the distending force of the water in a Bramah's press. Such loose coagulation will also be liable to stop the flow of blood through the aorta (an occurrence which, it is needless to say, is all but certainly fatal, whether suddenly or gradually produced), or, at all events, it can scarcely fail to cause fatal obstruction and embarrassment to the heart's action, as coagulation of this kind would never be limited merely to the interior of the sac. The trial should be, by tranquillizing the circulation and preserving the blood in as highly fibrinized a state as possible, to procure the obliteration of the sac, and of the sac only, by layers of coagulum so firm, organized, and even, that they may resist the infiltration of the blood, and present internally a smooth but resisting surface past which that fluid may glide easily in its passage through the vessel.

The importance of removing all congestion of the liver, spleen, and kidneys, and keeping up a healthy action, cannot be too strongly enforced.

The reduction of the volume of the circulating fluids has long been considered as a necessary means in the treatment of all organic diseases of the heart and its appendages; but, unfortunately, depletion has too often been the course adopted to effect this purpose. In a person reduced by organic

disease, a full bleeding, to say nothing of its influence in depressing and rendering irritable the functions of the nervous and vascular systems, has the effect of removing from the body a quantity of vitalized and organic matter, which, it is probable, the weakened powers of nutrition may never succeed in reproducing; and, so far from this plan of treatment having the effect of relieving the blood-vessels from distention, I doubt much whether, in a weakly person, whose absorbents are active, the vascular system does not, in a few hours after a free depletion, either by the lancet or by purging, contain as large, nay, it may even be a larger, bulk of fluid than it previously did, much watery matter having been rapidly absorbed to supply the place of that which was removed. Still, in these cases, as much as possible of the thinner part of the blood must be drained off.

In every instance of arterial and cardiac disease, the weakened structures become oppressed with the load of fluid which they have to convey, and nature often attempts to relieve them by visceral engorgements, dropsical effusions, and hemorrhages. The desired effect may be far more successfully produced by gradually diminishing the quantity of the fluid ingesta, than by the employment of any system of active depletory evacuation.

It is, of course, by no means requisite that a patient suffering from arterial or cardiac disease should be suddenly deprived of either fluid or solid food, or should at any time submit to absolute privation by hunger or thirst, but no injury can be done by reducing the quantity of the ingesta to the smallest reasonable standard, while care is taken that their quality shall be of the most nutritive kind.

I believe that by far the best mode of removing fluid in these cases is by keeping up a gentle action upon the skin and kidneys.

Diminution of the fluids, rest and gentle tonic treatment, tend to preserve the muscular power of the heart, and to maintain the due capacity of its cavities, and may, to a certain degree, restore these properties when they have failed in consequence of disease.

The administration, under these circumstances, of digitalis, the acetate of lead, and other medicines which have a direct tendency to lower the action and depress the power of the heart, cannot, I submit, be too earnestly deprecated. I believe that the former of these medicines is generally used in organic diseases of the heart and great vessels, with very mistaken views of the pathology of those affections. The great error appears to be still often committed, of regarding palpitation as though it were itself the disease, and not, what it really is, the sole means by which an obstructed and overloaded heart is enabled to propel its contents—and hence of employing medicines which check the palpitation without removing its causes. But the rational plan of treatment here obviously is, to remove the causes of obstruction from which the heart suffers, where they are not of a permanent nature, or, if that be impossible, to diminish the load of fluid which embarrasses the heart, and then the palpitation, being no longer requisite, will abate of its own accord. *Part xii., p. 160.*

Operation for Femoral Aneurism.—The following is a different mode from that usually adopted for securing the external iliac artery in cases of femoral aneurism.

H. S., æt. 51, healthy-looking, spare, of phlegmatic temperament, ad-

mitted into hospital with aneurism of the right femoral. The disease began about four months before, in the usual way, after a heavy stumble; pain for a while, and afterward the appearance of a pulsating tumor, which gradually increased.

The tumor, at the period of his admission, was raised about two inches above the level of the thigh, and it was about five inches in diameter, entirely occupying that triangular space, the apex of which is formed by the junction of the sartorius and rectus, and the base by Poupart's ligament, which the tumor slightly overlapped. The pulsation is equally distinct in every part, and can be checked by pressure upon the external iliac artery; but the tumor, from the solid nature of its contents, cannot be emptied. Upon auscultation, a loud whizzing sound is heard accompanying each pulsation, which also communicates a vibratory sensation when pressure is made with the fingers. He complains of pain in the tumor, especially at night, and of numbness down the fore-part of the thigh and inside of the knee. Mr. Cooper thus details it:

In this operation an incision is made through the skin and superficial fascia of the abdomen, commencing immediately on the outer side of the external ring, and terminating within an inch of the anterior superior spinous process of the ilium, and no part of this incision should be more than half an inch above Poupart's ligament. In depth it should extend only to the tendon of the external abdominal oblique, without dividing any of its fibres. In this step some hemorrhage may occur from the circumflex ilii, external epigastric, or external pudic branches, which, although naturally small, may have become distended from the obstruction of blood through their parent trunk; and should the bleeding be troublesome, the vessel ought to be at once secured.

The next object is to lay open the inguinal canal, which is effected by cutting through the tendon of the external abdominal oblique to the full extent of your first incision. The spermatic cord is then to be drawn upward and inward toward the linea alba, and the cremaster muscle pressed downward toward Poupart's ligament. When this is effected, the fascia transversalis is completely exposed, partly passing down beneath Poupart's ligament to form the anterior layer of the sheath of the femoral vessels, and on the outer side firmly attached to that ligament. The next step is to open the cavity of the abdomen, and this should be effected by dividing the fascia on the outer half of your incision, where it will be found that the peritoneum is very easily pushed upward; while, on the contrary, if you make your opening on the inner side of the internal ring, the peritoneum, in its course to the scrotum, where it forms the tunica vaginalis, is so firmly united to the fascia as to be with difficulty separated, and liable to be torn in the attempt. All that remains now to be done, is to separate the artery from the vein, by dividing with your finger-nail the fascia iliaca which covers them; and then, passing your aneurismal needle between the two vessels, its point is directed from within to without, and the ligature tightened with that degree of force necessary to cut through the two internal coats of the vessel. What is the precise degree of force to be employed is impossible to be described by words, and is only to be acquired by practice. I would dwell particularly on the necessity of passing the aneurismal needle from within to without, for if an attempt be made to pass it in the opposite direction, the vein is almost sure to be wounded. The edges of the wound are now to be brought together, either by liga-

ture or strapping, and the patient placed in bed with the aneurismal limb well wrapped in flannel. Some surgeons recommend hot water to be applied to the foot, which, in my opinion, is wrong, as it excites too rapid a flow of blood through the capillaries. *Part xii., p. 172.*

Popliteal Aneurism—Gangrene following Operations for.—Vide Art. "Gangrene." *Part xii., p. 170.*

Treatment of Aneurism by Compression.—According to Dr. Bellingham, such an amount of compression is not necessary as to cause inflammation and adhesion of the opposed surfaces of the vessel, nor should the circulation in the artery at the point where it is compressed be entirely intercepted. To apply it successfully, the velocity of the current should be diminished, and the amount of blood in the sac be diminished, so as to encourage the deposition of fibrin, until the sac is quite filled. It has this advantage over the cure of aneurism by ligature, that the artery is obliterated at the seat of the aneurism, by which the chances of gangrene are diminished. The cure is also more effectual, as the sac and also the artery leading from it, become filled with fibrin, whereas, after ligature, a loose coagulum remains which does not fill the sac. *Part xiii., p. 209.*

Popliteal Aneurism—Compression of the Arterial Trunk on the Cardiac Side of the Tumor.—It is not unfrequently found that the artery and its accompanying vein have become adherent, which is a great source of embarrassment to the operator, when tying the artery; this is avoided by adopting the treatment by compression. A moderate degree of pressure is all that is necessary throughout, so as not entirely to intercept the current of blood through the vessel. *Part xiii., p. 211.*

Aneurism of the Carotid Artery.—The patient in this case was a delicate man, 34 years of age, and of intemperate habits. A small tumor made its appearance three or four months ago, which had gradually increased in size. In consultation it was agreed that it was an aneurism of the carotid, and that it was possible to tie the vessel below the tumor.

The patient being laid on a table, in such a position that the light fell directly on his neck, an incision, about two inches long, was made through the integuments in nearly a perpendicular direction, and terminating at the inner margin of the attachment of the sterno-mastoid muscle to the sternum, the upper part of the incision being between the tumor and the trachea. This exposed a large vein, round which two ligatures were placed, and the vein divided between them. The fascia and some loose cellular tissue were next divided, and the edge of the sterno-hyoidens brought into view. Crossing the upper angle of the wound was just seen the omohyoidens. At this stage of the operation, very moderate pressure with the point of the finger at the bottom of the wound arrested the pulsation of the tumor; but the beating of the carotid could not be felt. The sides of the wounds were held asunder by blunt hooks, and the wound kept clean by small bits of sponge, put to the bottom of it by means of forceps. With forceps and scalpel the sheath of the artery was now scratched through, a nerve (descendens noni) was seen, and pulled aside by the blunt hook, and the artery was fully exposed. An armed aneurism-needle was, with some difficulty, passed behind it from the outer side. The artery, as it now lay on the aneurism-needle, was compressed with the tip of the finger, and the tumor's pulsation was found to be commanded. The needle being with-

drawn, and the ligature firmly tied, the edges of the wound were brought together by two points of suture, and some strips of Macord's plaster.

The patient was then put to bed, and the wound and tumor kept covered by pieces of linen wrung out of cold water. Scarcely an ounce of blood was lost during the operation. The ligature employed was a firm round hemp one of moderate thickness. Before commencing the operation, the patient was desired to exhale completely, and to keep his chest as empty as possible. While in this state, the upper part of the chest was closely surrounded with a very long firm bandage, and he was instructed to respire, as much as practicable, by the diaphragm and abdominal muscles.

Part xiii., p. 218.

Aneurism by Anastomosis of the Scalp.—The aneurismal condition of the extreme blood-vessels, named by the older surgical writers *nævus maternus*, is, by the moderns, still so called in its superficial forms; in its deeper seated, *aneurism by anastomosis*, *tumeur érectile*, *tumeur variqueuse*, *placental tumor*, and in all its forms *telangiectasis*. Previous to the time of John Bell, the deeper forms, or such as lie beneath the skin without involving it, were neither designated by name, nor was their nature understood; they were, probably, confounded with a variety of other diseases, or described as anomalous. Mr. Bell first pointed out their distinctive properties, and denominated them aneurisms from anastomosis: this appellation I, on the present occasion, retain, not because I think it the most proper, but because by it the disease is best understood.

[Dr. Fraser's case is chiefly interesting in relation to the question of treatment. The patient was a young man, twenty years of age. He first consulted Dr. F. on the 19th of June, on account of a small tumor situated over the posterior and superior angle of the right parietal bone.]

About twelve years previously he fell on his back, that part of the head occupied by the tumor striking a log, which produced a bruise of the scalp. This spot became very hard, then commenced throbbing, and has been gradually enlarging; during the year preceding the above date, it had increased more than during any former one, and so troublesome had the whizzing pulsation he then experienced become, that it occasionally prevented him from sleeping; in other respects he enjoyed good health.

To the eye, pulsation in the tumor was very apparent; the scalp covering it was thinner than natural, but not discolored; to the ear, aided with the stethoscope, the aneurismal bruit was distinctly perceptible; to the feel it was soft, communicated a peculiar thrill to the finger, and could be nearly emptied by pressure, when the bone beneath felt deeply and irregularly indented; on removing the pressure it filled almost immediately. The occipital and temporal arteries on the same side were greatly enlarged, and imparted a vibrating sensation to the finger placed over them. The bone beneath them also was channelled out, evidently by the continued stream of blood passing through the enlarged and excited vessels, having caused its absorption.

In consultation with several eminent men, Dr. Fraser determined to treat this tumor by means of setons, and small ones were passed on the 19th of June: next day he passed another through, and two through the occipital artery, between the tumor and mastoid process.

Dr. F. next endeavored to obliterate the occipital and mastoid arteries by twisting around them a hare-lip suture, and painted the tumor with

iodine. When the setons were removed, hemorrhage took place, which was arrested by pressure. As there were still several large branches of arteries supplying the tumor, and a bruit could still be detected in it, he treated them in the same way, by needle and hare-lip suture. The tumor now became flaccid, and was strapped down with a compress of sheet-lead and a bandage. By the 27th of September there was scarcely any perceptible enlargement of the part.

Part xiii., p. 225.

Traumatic Aneurism of the Temporal Artery.—Electro-galvanic action has been successfully employed to effect the consolidation of aneurism, by Dr. Petrequin, chief surgeon to the Hôtel Dieu at Lyons.

Case "D.," aged nineteen, a locksmith, was brought to the hospital senseless, on the 4th of August, 1845, immediately after a violent fall on the head. The lower maxilla was fractured at the symphysis and the left orbit was the seat of considerable ecchymosis. The symptoms of cerebral commotion had given way in a great measure, when variola declared itself. The rupture fever accomplished its periods in the usual manner, and it was only on September 9th, five weeks after the accident, that M. Petrequin could direct his attention towards a tumor occupying the left temporal region, and which he had noticed long before. The swelling was of the size of an almond, soft, and almost indolent on pressure; it was seated on the course of the temporal artery, and presented pulsations isochronous with those of the arteries. These pulsations ceased when pressure was exerted on the temporal artery below the tumor, and reappeared on the pressure being removed. These signs left no doubt of the nature of the case, and aneurism of the temporal artery, probably due to the injury experienced by the vessel during the accident, was diagnosed. On the 10th of September, galvano puncture was performed by the introduction of two sharp steel pins crossing each other at right angles in the tumor; the heads of the pins were then placed in communication with the wires of a voltaic pile, and a shock and a sharp pain were experienced by the patient, the pain increasing with the intensity of the electrical action. The operation lasted ten minutes, and fifteen plates were employed. The pulsations gradually diminished in the tumor during the operation, and at its close had nearly disappeared. No accident followed the experiment, but a solid indurated swelling took the place of the tumor, the temporal artery ceasing to beat above the aneurism, while its pulsations remained distinct below. On the 20th of September, absorption had achieved the cure, and neither tumefaction nor pulsations could be detected in the spot where the malady had existed. M. Petrequin gives the following precepts, which he deems will insure the complete coagulation of the blood contained in aneurismal tumors: 1. Compression of the artery between the aneurism and the heart during the application of the galvanic agency. 2. The pins introduced into the tumor should be numerous, cross each other at right angles, and their surface should be protected by a coat of varnish, in order to prevent unprofitable loss of the electric fluid. 3. After the operation, ice should be applied to the tumor. This is the first case on record of aneurism cured or even treated by this method, which has been of late employed in the treatment of a large number of diseases.

Part xiii., p. 230.

Case of false Aneurism.—The patient was twenty-eight years of age, and exceedingly corpulent. On the 23d of May, 1845, he received a pistol-shot in the upper and outer part of the right thigh; the ball tra-

versed the course of the femoral vessels, and passed out at the left groin. The hemorrhage was very profuse, and it was with great difficulty he could be roused from a state of syncope into which he had fallen. A large tumor formed at the lower part of the abdomen, from the extravasation of blood; as this increased in size, a pulsation could be detected in it; it was of an oval form, firm, but elastic; the skin covering it was discolored and thin; the opening in the groin had closed with a very thin cicatrix. The appearance of the patient indicated extensive loss of blood. Mr. Liston observes:

The nature of the case was very apparent. A large false aneurism, not well bounded, rapidly increasing, and arising from a wound of the femoral artery, or some branch divided close to its origin, had to be arrested, otherwise the patient must be left exposed to the risk of perishing suddenly, and at no distant period. After consultations on the evening of the 30th, and morning of the 31st, the external iliac artery was tied, with the loss of not more than a tablespoonful of blood, and with the immediate effect of arresting the pulsation, and removing, in a great measure, the tension of the tumor. Symptoms of peritonitis supervened the evening of the second day, and on the following afternoon the patient sunk.

The author subjoined an account of the post-mortem examination by Dr. Allen. The course of the bullet was traced from the outside through a dense layer of fat, about two inches in thickness. It had divided one of the superficial branches of the femoral artery, about half an inch below Poupart's ligament, and about an inch from the main body of the femoral artery, which had caused a false aneurism. The sac contained about three ounces of blood. No other artery appeared to have been wounded. A considerable quantity of sero-purulent fluid was found in the abdominal cavity, and patches of acute inflammation were observed on the intestines. The peritoneum adjoining the wound of the operation was inflamed. It had not been injured by the knife. The ligature had been properly applied to the external iliac artery. The abdominal viscera were healthy, but loaded to an extraordinary degree with fat. There was some enlargement of the right limb, apparently no mortification. The femoral artery was pervious. The blood in the aneurismal sac was firmly coagulated, and there was no mark of recent oozing from the injured artery. The ball had passed immediately over, and along the course of the artery for about half an inch before dividing it. The artery, although not actually detached, would not have borne a ligature.

Part xiii., p. 231.

Diagnosis of Aneurism.—Recent events have no tendency to increase our confidence in the diagnosis of aneurism. Dr. Kerr and Dr. Engelhardt have lately erred in their diagnosis. Perhaps it arises from too great reliance being placed on one or two diagnostic signs, such as a diastolic impulse felt in all parts of the tumor, and a diminution in its size, when either it, or the artery on its cardiac side, is compressed. The former symptom occurred in a malignant tumor of the foot—described by Dupuytren, and the latter in a pulsating tumor of the femur, lately under the care of M. Nélaton. Mr. Teale adds:

In a case, under my own care, of a large serous cyst of the neck, extending downward behind the clavicle in the vicinity of the large vessels, there was such a strong and apparently distensible impulse perceptible in all

parts of the tumor, as to induce myself and several other surgeons, for a considerable time, to regard it as aneurism. In this case, the hands applied to the sides of the tumor were forcibly separated at each pulsation; and, by compression, the tumor was diminished in size (undoubtedly from a portion of its contents being forced below the clavicle toward the chest,) and when the pressure was discontinued, the tumor gradually resumed, by pulsatile stages, its original size. Hypertrophy of the left ventricle, and dilatation of the abdominal aorta, tended still further to obscure the case. After the tumor had been reduced in size, its true character became apparent. The exploratory puncture, hitherto regarded as a test of aneurism, can no longer be received as such, since I have shown that a malignant cysto-vascular tumor of the femur, on two occasions, after an exploratory puncture, gave issue to a pulsatile column of florid blood, which was projected to the height of several inches.

Part xiii., p. 234.

Pain as a Diagnostic Symptom of Aortal Aneurism.—1st. Intense pain in cases of internal aneurism is the most certain symptom of erosion of the bodies of the vertebrae.

2d. In addition to its severity, the pain presents two other well-marked characters—viz., 1st. It is referred not to the exact size of the lesion but to parts at some distance. 2nd. The patient suffers more from it at night than during the day.

3d. That unless erosion of bone occurs, the pain may be absent or comparatively slight, except in the cases already alluded to, where large nerves are compressed.

4th. That in aneurism of the descending thoracic, or of the abdominal aorta, where the pain has the characters mentioned, the aneurismal sac almost always springs from the posterior wall of the aorta, and has caused erosion of the vertebrae; whereas, when pain is absent, or comparatively slight, the sac will be found to spring from the anterior wall of the vessel, and the bodies of the vertebrae will be little or not at all engaged.

Part xiv., p. 177.

Galvano-puncture in Aneurism.—The galvanic current should be directly transmitted through the blood itself by two opposing points. Employ fine steel needles, three inches long, and as they burn or cauterize the skin, or lose their electricity, coat them, before application, with gum lac or cutler's varnish. The extremities of the needles should cross each other in the tumor, and when the latter is of large size, multiply the points, so that the nuclei of coagulation may pass into one common clot. They should pass into the tumor obliquely or perpendicularly, opposed to the current of blood. The application of the galvanic current may be made each time ten or twelve minutes; by this time the tumor will feel hard, and the pulsation cease: after this, apply compression, or a bladder of ice, to complete the cure. It is suggested for the cure also of varix, orectile and sanguineous tumors, etc.

Part xiv., p. 182.

Galvano-puncture in Aneurism.—Mr. Hamilton has tried it in a case of carotid aneurism. He passed fine gold needles coated with shell lac, an inch long, through the inner and outer sides of the tumor, and made them to touch in the centre; then used Smee's battery, with twelve pairs of plates, gradually applied. After fifteen minutes, pulsation became less, the

tumor firmer, and, at the end of twenty minutes, complete coagulation was evident, as the tumor was solid and the pulsation was imperceptible.

Part xiv., p. 184.

Ligature of the left Subclavian Artery within the Scalenus Muscle, for Aneurism.—Although this case proved unsuccessful, yet Dr. Rodgers was convinced that the operation is practicable and proper.

Directions.—Lay the patient on a low bed, with the head and shoulders raised, and the face turned to the right side. Make an incision three and a half inches long, on the inner edge of the mastoid muscle, terminating at the sternum, and dividing the integuments and platysma myoides.

Make a second incision from the last, horizontally, toward the sternal extremity of the clavicle, two and a half inches long. Dissect the flap of integuments and platysma upward and inward, so as to lay bare the sterno-mastoid. Pass a director under this muscle, and divide the sternal and half the clavicular attachments with a bistoury. Turn these portions up, so as to show the sterno-hyoid and sterno-thyroid muscles, and the jugular vein beneath the fascia; also a portion (in this case) of the aneurismal sac, strongly pulsating. Divide the fascia with the handle of the scalpel and fingers, and pass down the inner side of scalenus anticus, carefully avoiding the internal jugular vein, thoracic duct, and phrenic nerve, until the finger reaches the artery and recognizes well its pulsation. Detach the artery very deliberately, so as to avoid wounding the thoracic duct and pleura, and pass the aneurismal needle (in this case, Sir Philip Crampton's) under it, with the point and ligature upward. Catch and secure the ligature (tying it securely with the point of the fore-finger, in the bottom of the wound), and, to be satisfied that the artery is secured, take care to examine the distal part of it for the cessation of all pulsation.

Part xiv., p. 187.

Treatment by Compression.—Dr. Bellingham gives the following summary:

1. The arteries to which compression is applicable being far more frequently the subject of aneurism than those to which it is inapplicable, compression is calculated to supersede the ligature in the great majority of cases.
2. The cure of aneurism by compression upon the artery between the aneurismal sac and heart, according to the rules laid down here, is accomplished by the gradual deposition of the fibrin of the blood in the sac, until both the latter and the artery at the part is completely filled. The process is in fact exactly similar to that by which nature effects a spontaneous cure of aneurism.
3. Such an amount of pressure as would cause inflammation and adhesion between the opposite sides of the artery at the point compressed is never required.
4. The pressure should not be so great as to interrupt the circulation in the artery at the point compressed; an essential agent in the cure being that a current of blood should pass through the sac.
5. Compression by means of two or more instruments, one of which is alternately relaxed, is much more effectual than by any single instrument, and in many instances the pressure can be maintained by the patient himself.
6. The treatment of aneurism by compression does not involve the

slightest risk to the patient, and if persevered in cannot fail of effecting a cure.

7. A cure of aneurism effected by compression, according to the rules laid down here, must necessarily be permanent; and in every case in which a cure has been accomplished, the patients have remained well subsequently.

8. The femoral artery remains pervious after the cure at the point at which the pressure has been applied, and no morbid change of any kind is to be detected in either the artery or vein at the site of the compression.

9. When a cure is effected by compression, the vessel is obliterated only at the seat of the aneurism, and the artery at this part is eventually converted into an impervious ligamentous band.

10. Compression effects the cure of aneurism by more simple and safer means than the ligature, while it is applicable to a number of cases in which the operation is contra-indicated or inadmissible.

11. Compression is not necessarily a more tedious or more painful method of treating aneurism than the ligature, while it is much more certain, more likely to be permanent, and is free from all danger.

12. Compression, according to the rules laid down here, has little analogy with the old method which went by this name, and, in fact, has no greater resemblance to it than the Hunterian operation had to the operation for aneurism which it superseded.

Part xv., p. 187.

Treatment of Popliteal Aneurism by Ligature.—Mr. Syme gives the following instructions regarding this operation:

With regard to the ligature, it appears that this operation admits of being performed so as to be nearly, if not entirely free from danger. I have undertaken it in every case that presented itself, although the circumstances were often very unpromising, and even when erysipelas as well as hospital sores invested the clinical wards of the Royal Infirmary.

There is now, I believe, no difference of opinion as to the proper principles of the operation. They are—1st. To dissect with the knife and forceps, instead of tearing or scratching with a blunt instrument, to expose the artery. 2d. To denude no more of the vessel than what is requisite for passing the needle. 3d. To use for ligature the smallest silk thread possessing sufficient strength, and tying it as tightly as possible. 4th. To treat the wound so as to favor union by the first intention. As to the performance of the operation, I believe that there is no arterial trunk in the body which requires for its ligature so little anatomical skill, or manual dexterity, as the femoral artery. The angle formed by the sartorius and adductor longus affords a sure guide to the vessel; and in the event of any error as to the position of the external incision, the fibres of these muscles by their different directions at once show the operator on which side he has exceeded. But while the mere detection of the artery is abundantly easy, it must be admitted that the subsequent part of the operation is beset with extreme danger from any want of caution or nicety, since, if the vessel be roughly detached from its connections, hemorrhage will probably result; and if the vein be wounded, the patient will almost certainly perish from inflammation of the vessel, or mortification of the limb. Care is always required, and must be employed in a degree proportioned to the intimacy with which the artery is connected to the neighboring parts. I have completed the operation in less than a minute, and on other occasions

have found nearly half an hour requisite for the purpose. If all operators had paid as little regard to the time occupied, I believe that the unfavorable results on record would not have been so numerous as they are. The operation, therefore, I believe, being performed upon proper principles and with sufficient care, may be regarded as perfectly safe.

Part xv., p. 189.

Aneurism by Anastomosis in the Anterior Nares.—Vide Art. "Nose."

Part xv., p. 194.

Sounds of Aneurism of the Aorta.—[The following conclusions respecting the sounds of the heart and of aneurism of the aorta, have been arrived at by Dr. Bellingham:]

1st. That a double, not a single sound, characterizes aneurism of the arch of the aorta, which closely resembles the double sound of the heart, and may be termed its *normal* sound.

2d. That the normal double sound of aneurism of the arch of the aorta has its cause in the friction between the blood and the lining membrane of the orifice and parietes of the sac, because there is no other agency to which it can be referred.

3d. That the normal second sound of aneurism of the arch of the aorta is caused by the regurgitation of the blood into the sac from the aorta and large vessels which arise from it.

4th. That the first, or the second, or both aneurismal sounds, may be replaced by a murmur, which may have either a blowing, sawing, or fling character, and that such murmurs may be regarded as the *abnormal* sounds of aneurism of the arch of the aorta.

5th. That the first aneurism sound is much more frequently superseded by a murmur than the second, because the force with which the blood is transmitted to the sac by the left ventricle is much greater than that with which it regurgitates into the sac at the period of the ventricular diastole.

6th. That the abnormal sound of the aneurism of the arch of the aorta, equally as its normal sounds, are caused by friction between the blood and the orifice or parietes of the sac; and that they are nothing more than exaggerated normal sounds—exaggerated, because the degree of friction is then increased.

7th. That in aneurism of the arch of the aorta pointing externally, the sound is not only always double, but a double impulse is frequently also perceptible to the hand.

8th. That the second impulse of aneurism of the arch of the aorta has its cause in the same agency which gives rise to the second sound; consequently neither a double sound nor a double impulse is perceived in aneurism of the abdominal aorta, or of any of its branches.

9th. That the phenomenon known under the name of *frémissement cataire*, or purring tremor, whether it occurs in an aneurism or a large artery, is nothing more than the pulse of aortic regurgitation on a large scale, consequently that it is a sign of regurgitation into the ventricles of the heart, into an aneurismal sac, or into a large or dilated artery.

10th. That the remarkable resemblance between the normal and abnormal sounds of aneurism of the arch of the aorta, and normal and abnormal sounds of the heart, renders it probable that the mechanism of their production is the same.

11th. That the abnormal sounds of the heart, having their seat at the orifices of the ventricles, and being the result of increased friction between the blood and the parts through which it passes, are (like those of aneurism of the arch of the aorta) to be regarded as nothing more than exaggerated normal sounds.

12th. That the impulse of the healthy heart, like that of aneurism of the arch of the aorta pointing externally, is *double*, not single; and that in certain abnormal conditions of the heart, this second impulse becomes very distinct, when it has been termed "the back stroke of the heart," or "the diastolic impulse."

13th. That the second impulse of the heart (like that of aneurism of the arch of the aorta), is felt exactly at the period of the second sound; and both sound and impulse appear to be produced by the same agency.

14th. That as sounds almost precisely similar to those of the heart are developed in an aneurismal sac, which has neither muscular walls nor a valvular apparatus at its orifice, the latter do not appear to be as essential to the production of the normal sounds of the heart as most writers suppose.

15th. That the ordinary theory of the heart's sounds, which refers the normal sounds to one cause, and its abnormal sound to a totally different cause, fails to explain several phenomena connected with the heart's action and sounds.

16th. That the theory of the mechanism of production of the heart's sounds laid down, satisfactorily explains every phenomenon connected with the normal and abnormal sounds of this organ.

Part xviii., p. 165.

Aneurism—False, of the Bend of the Elbow.—If the brachial artery is unfortunately wounded in performing venesection, the proper practice is by no means to cut down upon the artery immediately, but apply a compress over the aneurismal sac, letting it extend upward in the course of the artery, and carefully bandage the entire limb, beginning with the fingers and thumb, and extending to the axilla; and let the limb be kept elevated on an inclined plane, and perfectly quiet. If this does not succeed, cut into the sac, and tie the artery above and below; or what is better, tie the artery above the tumor, and then, the impetus of the blood being taken off by the ligature, employ slight pressure upon the tumor.

Part xx., p. 118.

Aneurismal Varix.—Aneurismal varix, or a communication between an artery and vein, occurs, Mr. Cooper observes, not merely from accident, as in venesection, but may arise from disease, and may be found between any artery and vein lying in close proximity. Tie the brachial artery in the middle of the upper arm, and apply gentle compression over the tumor, and in the course of the radial and ulnar arteries. If this plan fails, the following operation, a much more dangerous one, must be performed: place a tourniquet on the brachial artery, so as completely to compress it, and then make a free incision into the aneurismal sac; turn out the clot of blood, and seek for the upper and lower openings of the artery. Pass the end of a probe into the upper opening, to serve as a guide in separating the artery from the surrounding parts, and secure the vessel; then repeat the same process upon the distal end.

Part xx., p. 123.

Aneurism of the Radial Artery.—[Prof. Syme gives the following case of a man who had, at the root of the thumb, a tumor about the size of a flattened gooseberry, and stated that ligature of the artery at the wrist had been recommended as the remedy.]

The swelling looked so much more like a ganglion than an aneurism, that I supposed there must have been a mistake as to its nature; but, upon a more attentive examination, finding that there was a distinct expansive pulsation, I could not doubt that there was a sac communicating with the radial artery, pressure upon which instantly lessened the swelling, and deprived it of the pulsating character. I therefore had a little spring constructed, upon the principle of a rupture truss, so as to press upon the vessel at the wrist, and at the end of twenty-four hours after it had been applied could not detect any trace of pulsation.

It may appear inconsistent in me to apply pressure at the wrist, instead of tying the radial artery, as I have strenuously contended against the substitution of pressure for ligature of the femoral artery. But the two cases are very different, since the latter-mentioned vessel has accompanying it the great venous trunk of the limb, which the utmost extent of human skill and care cannot prevent from being compressed along with the artery, and necessarily occasioning a degree of suffering to the patient which must, if at all prolonged, infinitely exceed the trivial disturbance which attends ligature of the artery—while the radial artery lies directly under the skin, rests upon the bone, and has no associate disposed to resent the effect of compression. I may add, that it has always been an established principle with me, that the radial artery and its branches at and below the wrist are completely under the command of pressure.

Part xxiii., p. 149.

Novel Treatment of Aneurism.—Displacement of the fibrin in the clot of an aneurism sometimes happens with consequent interruption to the current of blood, and sometimes spontaneous cure. Mr. Fergusson, in imitation of this process, by manipulation, dislodged a portion of fibrin in the case of an aneurism of the subclavian, with the effects of instantaneously stopping all pulsation of the upper limb. In four days a slight pulsation was perceptible at the wrist, but all pulsation had ceased in the axillary. The tumor was diminished considerably in size, and became firmer to the touch, so that there is ground to hope it may be successful.

Part xxv., p. 193.

Treatment of Aneurism.—Recorded facts seem to prove the following conclusions: 1. That in popliteal aneurism, skillful compression of the femoral is capable of curing the disease, and that with comparative and almost absolute safety to life and limb. 2. That the time expended in cure is, on an average, not greater than in the treatment by ligature. 3. That failure by compression does not compromise subsequent recourse to deligation. 4. And that consequently, compression, when skillfully employed, being equally certain, far more safe, and not more tedious than the ligature, should, in the great majority of cases, be preferred. The only disadvantage of compression is the care and trouble necessary on the part of the attendant, with irksomeness and sometimes suffering on the part of the patient. The obvious and only advantage of deligation, on the other hand is the facility and dispatch of its execution, with probable ex-

emption from suffering afterward by the patient, in the successful cases. The formidable disadvantage is, its proved risk to life and limb.

Part xxvii., p. 119.

Injection of a concentrated Solution of Perchloride of Iron into Aneurismal Tumors.—It has recently been attempted to cure aneurismal tumors by injecting into them a few drops of a concentrated solution of the perchloride of iron. Several cases have been recorded in which the operation was successful.

Part xxviii., p. 171.

Fulse Aneurism of the Posterior Tibial Artery, from a Wound.—The injection of perchloride of iron caused coagulation of the blood in the spurious aneurismal sac, produced by division of the posterior tibial artery in a child aged four weeks. The firm clot squeezed out the serum, which was seen oozing from the surface of the wound. The instrument used for injection was a glass syringe, with a long and slender tube, which was made to penetrate the clot, and convey the perchloride to the fluid blood below.

Part xxviii., p. 172.

Cure of Aneurism of the Subclavian Artery, by the External Application of the Chloride of Zinc.—M. Bonnet announces the complete cure of an aneurism of subclavian artery by the application of chloride of zinc paste. The caustic penetrated by imbibition into the deeper part of the tumor, and produced complete coagulation of blood, which was detached without any hemorrhage. The eschar separates in about eight days after the application of the caustic, but by successive applications it may easily be retained for a month or longer, or the superficial portions may be removed by a bistoury.

Part xxviii., p. 173.

Treatment of Aneurism by Peroxide of Iron.—Dr. Pavesi, of Bergamo, has lately injected a strong solution of the above-named salt into an aneurism of the temporal artery affecting a young man. The sac was about one inch from above downward, eight lines transversely, and might contain a drachm of fluid. A puncture was made into the tumor, and bright arterial blood escaped; the glass pipe of one of Charrière's syringes was then introduced, and about sixteen drops of the solution thrown in. The tumor was ten minutes afterward quite solid, and in one month no trace of the aneurismal tumor was left.

Part xxx., p. 131.

Aneurism, Popliteal—Treatment by Ligature.—Take if you please, half an hour, or a whole forenoon about it, but do not pass the needle till the artery has been sufficiently separated from the contiguous structures to enable you to avoid all risk of injury to the vein, which is the great source of danger to be dreaded. The femoral vein is more intimately connected with the artery than most veins. If, therefore, you do not separate the one from the other *with the greatest nicety*, you will very likely either pierce or bruise the vein, and Mr. Guthrie says, that the artery alone might be obstructed without death of the limb, but that this was the invariable result if both artery and vein were obstructed together. The femoral artery varies in its origin from the common femoral, and it is very important that the ligature should be considerably below its lowest origin. *Therefore, always tie low enough*, i. e., where the artery has become overlapped by the sartorius muscle. If, however, you go below this muscle, you will be too near the aneurism.

Part xxxi., p. 143.

Treatment of Aneurism by Compression.—It is not necessary to cut off the entire flow of blood to the tumor, neither is it necessary to continue the pressure always in one spot, but it may be shifted from one place to another. In many cases, it is only necessary to *modify* the flow of blood through the main artery. Carté's circular compressor is a good instrument. It has an ingenious addition to the common screw, in form of bands of caoutchouc, whereby a certain resiliency is acquired, which keeps up effectual pressure and modifies the screw.

Elastic-pressure is the latest improvement in the treatment by compression. The screw apparatus seems to have been discarded in popliteal aneurism. The elastic spring seems to be quite enough to restrain the current of blood, which is sufficient. *Part xxxi., p. 146.*

Aneurismal Tumor (Nævus).—Puncture the tumor, and immediately plunge into it the canula of a glass syringe filled with acetate of lead, and inject eight or ten drops or more. Then withdraw the syringe, and apply the finger to the wound for about a minute. *Part xxxi., p. 148.*

Aneurism and Varix.—Make use of galvano-puncture, acupuncture with zinc, or with needles covered with a layer of this metal instead of steel. Insert a certain number of needles into the aneurism or varix, and connect them with the positive pole of the galvanic battery. The negative pole should be supplied with a plate of platinum, which must be put upon the skin adjacent to the aneurism, after having augmented the conductivity of the epidermis by moistening it with a saline or acidulated solution. *Part xxxi., p. 151.*

Subclavian Aneurism.—When the usual method of treatment is inadmissible, you may succeed by pressing the sides of the aneurismal sac together with the thumb, so as to displace a portion of the lamellated fibrin in the aneurism; these clots will be directed forward by the current into the axillary and brachial, so as to block up the distal end of the artery. If followed up by local pressure, most striking and satisfactory results may be obtained. *Part xxxii., p. 138.*

Aneurism of the Innominata.—These are cases where you can do no good by operative interference. If the tumor projects, you must apply steady firm pressure over it, by means of a suitable pad; the effect of this will be to thicken and strengthen the coats of the artery, and may be very beneficial in preventing its increase. *Part xxxiii., p. 167.*

Aneurism, Popliteal.—There are few or no cases of popliteal aneurism in which the cautious use of pressure is not justifiable. The contra-indications to its continued use are: a shattered, irritable constitution, its close proximity to the knee-joint, and a very free communication with the artery by a large opening, which may be judged of by the loudness of the murmur and the time which the tumor requires to fill. *Part xxxiv., p. 134.*

Sub-Arterial Cysts of the Wrist.—M. Chassaignac calls attention to a form of ganglion which, placed beneath the radial artery, unless properly understood, may give rise to very serious errors. From excess of labor, or the exertions necessary to raise heavy burdens, the small tumor may acquire considerable development. The fingers of the surgeon when applied over the cyst, are raised by the pulsations, which are remarkable for their energy, and the breadth of space they extend over. This extent of pulsatile surface immediately suggests the idea of radial aneurism, and if

the examination be continued, with the limb remaining in its ordinary attitude, an error can scarcely be avoided. The differential diagnosis may be established by bringing the wrist into a state of forced flexion, when, whether it is that the artery is displaced, or that it ceases to be stretched over the eminence formed by the cyst, the pulsations no longer exist, and it is evident that no aneurism is present. In treating these cases, M. Chassaignac employs the iodide of potash ointment, rubbing it in every two hours during a week. On the dorsal surface we may treat ganglia with advantage by crushing them, by subcutaneous puncture, seton, or iodine injection; but in the case of these sub-arterial cysts of the wrist, which are in communication with the radio-carpal articulation, these means of treatment are not applicable. The iodine frictions give rise to no accident, and seem possessed of all desirable efficacy.

Part xxxiv., p. 138.

Treatment of Aneurism by Manipulation.—In cases in which both the operations of Hunter and Wardrop have never been successful, as in aneurism of the subclavian artery, between and outside the scaleni, in which there is much known danger in the usual modes of treatment, Mr. Ferguson's plan of compression may be tried. The flat point of the thumb must be laid on the aneurism, and when the sac is emptied of fluid blood, the surfaces and supposed contents must be forcibly rubbed against each other; the fibrin will be displaced, and block up the distal end of the aneurism, and so a cure be effected.

Part xxxv., p. 88.

Superficial Aneurisms and their Treatment.—M. Broca has cured several cases of those congenital naevi, known vulgarly under the name of *wine spots*, and which it is well known are refractory to all modes of treatment. The proceeding consists in removing the epiderm by a blister, and then touching the denuded derm with a pencil of charpie, wetted with perchloride of iron, at 30° of the aerometer of Beaume. By one application of the perchloride on the denuded dermis he rendered definitively solid a circoid aneurism of the scalp, that had already existed four months and was making alarming progress. On the fifth day the tumor was obliterated, and the patient, who was seen seven months after, continued perfectly cured.

Part xxxi., p. 169.

Aneurisms—Cases in which their Treatment by Compression and Manipulation is proper.—In his observations on a case of *pupitral aneurism*, successfully treated by compression and manipulation, Mr. Teale, surgeon to the Leeds General Infirmary, said:

"Let me guard you against adopting this practice in aneurism of the carotids or of the innominate artery; or, in other words, in aneurism of arteries leading to the brain. In such cases you might run the risk of detaching small portions of fibrin, which being carried along the current of blood to the brain, might then produce the serious mischief of that organ, and the consequent paralytic affections described by Dr. Kirkes in a paper of great value published in the '*Medico-Chirurgical Transactions*' for 1854. And this is not a mere speculative evil, as you will perceive from the following case which I will briefly notice.

"In the year 1847 I was one of a numerous consultation on a doubtful case of carotid aneurism. The subject of it was a middle-aged female, in good health in other respects. She was seated in a chair while the tumor was examined by several persons in succession, and subjected by them to repeated handling and compression. While this was going on, she sud-

denly became pale and slipped off the chair. On being raised she was found to be hemiplegic. After lingering in this state for a few weeks she died. The tumor was found after death to be aneurismal. It was not, however, until I read the paper by Dr. Kirkes, that I fully appreciated the pathological bearings of this case. Now that we do understand it, let me urge upon you to bear it in your minds, and let it be a warning to you, in carrying out Mr. Fergusson's valuable suggestions, to limit the treatment by manipulation of the tumor to aneurism of the extremities. I may also add that in one of the two cases of aneurism of the subclavian artery, which are published by Mr. Fergusson, hemiplegia occurred very shortly after manipulation." *Part xxxix., p. 161.*

ANTIMONY.

Preparations of Antimony.—[The following practical remarks are made in a communication to the Pharmaceutical Society, on some of the preparations of antimony. It seems to be the general impression among medical men, that most of these preparations are inert and nearly useless; and owing to the expense of Dr. James's fever powder, that preparation is seldom used. Mr. Tyson makes the following observations on this subject:]

After torturing antimony in all ways, and trying, in the course of my practice, all its forms, in all doses, in all febrile diseases, in patients of all ages and all temperaments, I became satisfied that we had only two preparations worthy of notice, and that these two were invaluable, viz.: the tartrate and protoxide; and that the protoxide was the base of every useful preparation of antimony: proving the truth of the remark in "Duncan's Edinburgh Dispensatory," that "oxide of antimony, with phosphate of lime, is one of the best antimonials we possess."

In comparing the effects of James's Powder with *Pulvis Antimonialis*, I sometimes found their virtues so alike, in all their combinations, as not to be distinguished. Sometimes I had occasion to prefer James's Powder to the *Pulvis Antimonialis*, at other times I had reason to give the *Pulvis Antimonialis* the preference, finding that in the James's Powder there was considerable variation.

Profiting by the idea set forth by Chenevix, I began with his preparation, which I soon found would not do, for I never was certain of the quantity of antimony. I then tried the oxide procured from emetic tartar, and mixing it with phosphate of lime, I found I had a very useful antimonial, but it did not quite answer my expectation. At length I made my experiments on the *pulvis algarothi*, as ordered by Duncan; and upon adding to it, while in a state of hydrate (that is, after the supernatant liquor had been poured off), a solution of carbonate of ammonia, I was surprised to find a considerable effervescence, showing me that the beautiful white *pulvis algarothi* still contained a quantity of muriatic acid. I therefore continued to add solution of carbonate of ammonia, as long as any effervescence continued, and thereby deposited a straw-colored protoxide, which I washed with distilled water upon a filter, and carefully dried.

The next thing I had to do was to ascertain the effect of this, and I soon found that in this straw-colored oxide I had a medicine of great power and efficacy, and that I could only give it in dose from one-tenth of a grain to a grain; that a grain often vomits and purges; that half a grain, combined with five grains of calomel, given at the commencement of all febrile diseases, and followed by the neutral salts, cut short those diseases; that smaller doses, given every six hours, after proper evacnants, proved a mild but certain sudorific, without the nausea which emetic tartar produces; that when combined with small doses of calomel, it proved a powerful alterative. Comparing these effects with the best samples of James's Powder, I found it easy to form a compound similar thereto; and by experience I found I had obtained a preparation far superior, as being always the same and always certain. The following No. 1, and No. 2, are the forms in which I use it:

PULVIS ANTIMONIALIS.

No. 1. \mathcal{R} Protoxidi Antimonii, gr. ij.; Phosphatis Calcis, gr. xvij. Misce. Dose, from five to ten grains, if taken alone; but if combined with calomel, one grain to five grains.

Here we have a preparation totally soluble in dilute muriatic acid, ten grains containing one grain of protoxide of antimony.

No. 2. \mathcal{R} Protoxidi Antimonii, gr. ij.; Sulphatis Potassæ, Phosphatis Calcis, aa. gr. ix. Misce. Dose the same.

Another form may be made in the same proportions, with calcined hartshorn shavings; but I prefer the above, as being entirely soluble in weak acids.

To the second form, you observe, I have added sulphas potassæ, for three simple reasons:

1st. Because, in the best analyses of James's Powder, sulphate of potass has been found, which probably arises from fusing together sulphuret of antimony and nitrate of potass.

2d. Because it is more economical, in saving my phosphate of lime, which being procured by solution, is troublesome to obtain, and expensive.

3d. The third reason is the most sound of all: it acts with more certainty, and gently, upon the secretions of the alimentary canal. The practitioner may use which form he pleases; but, after many years' experience, I prefer that with sulphas potassæ.

PROTOXYDUM ANTIMONII.

\mathcal{R} Sulphureti Antimonii, \mathfrak{z} j.; Acidi Muriatici, \mathfrak{z} iv.; Acidi Nitrici, \mathfrak{z} ss. Misce.

Boil together for an hour, in a glass vessel; filter through paper; pour the filtered solution into water; pulvis algarothi, *i. e.*, submuriate of antimony, is precipitated; pour off the supernatant liquor, and add to this precipitate a solution of the carbonate of ammonia, as long as any effervescence continues; wash upon a filter with distilled water, and dry by a gentle heat.

Here we have about five drachms of beautiful straw-colored protoxide.

PHOSPHAS CALCIS.

\mathcal{R} Cornu Usti (vel, Earth of bones), \mathfrak{z} iv.; Acidi Muriatici, \mathfrak{z} iv.; Aquæ Puræ, \mathfrak{z} x. Misce.

Let them stand together for several days, occasionally shaking the vessel; filter, and then add to the filtered liquor, Liquor Ammoniac Puræ, ℥iv., vel. q. s. Wash upon a filter with distilled water, and dry.

When giving my Pulvis Antimonialis with calomel, every six hours, as an alterative, I have been occasionally obliged to reduce the dose to one grain of the compound, as mentioned before; for such is the deoxygenating power of this protoxide, and such is its affinity for acids, that when made into a pill with calomel, it decomposes the calomel, turns it black by taking up the muriatic acid, and will occasionally excite vomiting and diarrhœa. To obviate this inconvenience, I am now in the habit of giving it in combination with the blue pill. But my blue pill is not the blue pill of the Pharmacopœia, which, under the best management, is a very uncertain preparation. I make pilulæ hydrargyri with the protoxide, and to complete the usefulness of this communication, I will give you a form of that also.

PILULÆ HYDRARGYRI PROTOXYDI.

℞ Hydrargyri Protoxydi, ʒj.; Confectionis Rosæ Gallicæ, ʒiij.; Pulvis Florum Anthemidis, ʒss. M. s. a. et fiat massa.

Here we have a preparation with only half the quantity of mercury, far superior to, and of the same color, as the blue pill; always the same in effect, and always certain, and made in a few minutes. I have been obliged to leave out half the quantity of mercury, in order to approximate it to the strength of the blue pill of the Pharmacopœia, finding that the whole quantity was too active. I use the powdered chamomile, instead of the liquorice powder, as it keeps better, and sits more pleasantly upon the stomach: four grains and a half contain one of protoxide.

But the great secret that remains, is to procure the slate-colored protoxide. Aqua calcis will not do, as it produces an ash-color, from a mixture of the muriate of lime: liquor potassæ alone will not do, nor will liquor ammoniæ.

PROTOXYDUM HYDRARGYRI.

℞ Calomelanus, ℥iv.; Liquoris Potassæ Puræ, ℥iv. vel q. s. tere simul, et adde Liquoris Ammoniac Puræ, ʒss.; Aquæ Destillatæ, q. s.

Wash well upon a filter; dry with a gentle heat, and use immediately.

The liquor potassæ produces a brownish-black powder, but there still remains a portion of submuriate of mercury undecomposed, which no addition of liq. potassæ will act upon, but by the addition of a small quantity of liq. ammoniac, the slate-colored protoxide is immediately produced, and the calomel completely decomposed.

HYDRARGYRUM CUM CRETA.

℞ Hydrargyri Protoxydi, p. j.; Cretæ P. p. ij. M.

Always the same, and always certain, a form which can never be produced by trituration.

UNGUENTUM HYDRARGYRI.

℞ Hydrargyri Protoxydi, ʒij.; Adipis Suillæ, lb j. M. s. a.

Equivalent, for most purposes, to the ung. hydr. fort., and a great saving of mercury. But, N.B., for this purpose, the protoxide should be obtained from the hydrargyri muriatis mitis of the old Pharmacopœia, washing the precipitated submuriate while in a state of hydrate, as above. The

color completely resembles mercury, but for internal use, I prefer to decompose from calomel.

Equal parts of protoxide of mercury and sulphur, unite and form a fine black powder, similar to *Æthiop's mineral*, for which I originally intended it; but finding it too active for internal use, I now employ it as one of the best applications to chancre. It is a sulphureted protoxide.

The above forms of *Pulvis Antimonialis* and *Pilule Hydrargyri Protoxydi*, I have now used upward of twenty years; and such is my estimation of their value in the cure of diseases, that if I wished to leave a legacy to my country, I think I could not bequeath to her a greater boon. I have long found it unnecessary to use either *James's Powder* or the *Pulv. Antim.* of the *Pharmacopœia*. *Part v., p. 26*

Cautions Regarding the Use of Antimony.—Never give tartar emetic to a child under a year old; never give it to naturally delicate and scrofulous children, and never give continued doses. It is the sedative effect which is injurious, therefore the drug should only be employed in diseases which will bear this, as croup and pneumonia.

Dr. Beck says: Emetics are very efficacious, and may be given safely to the youngest child, if *ipecaçuana* is used. *Part xv., p. 123*



ANTISEPTIC.

Employment of Sulphate of Zinc as an Antiseptic.—M. Falcony states, as the result of his experimental researches, that sulphate of zinc is not only eminently antiseptic, preserving animal substances from decay, but that it actually arrests the progress of putrefaction which has once commenced. The injection of four or five quarts of the solution of this salt in water, through the arteries, suffices for the preservation of a human body, in a state of perfect flexibility, for upwards of forty days. Anatomical preparations thus made, will serve for dissection for a considerable period, the use of the solution not affecting the steel instruments employed. M. Falcony has also found, that preparations which have undergone change by maceration, resume their original character when immersed in a solution of sulphate of zinc. *Part xxv., p. 343.*



ANUS.

Fissure of the Anus—Treatment of, by Rhatany Root.—The mode in which M. Trousseau employs the rhatany root is the following: He administers to his patient every morning a clyster of marsh mallows decoction, or simply of water, with the addition of olive or almond oil, in order to clear out the intestines. Half an hour after the intestine has been emptied, he gives an injection composed of thirty-eight drachms of water; one to two drachms and a half of the extract of rhatany; and five drachms

and a half of alcohol, which the patient is desired to retain, if possible. The same styptic injection is repeated in the evening.

When the pain is once moderated, only one clyster is given daily; and when the cure appears to be completed, every alternate day only, for a fortnight longer.

He says he has derived considerable advantage from the employment of an ointment composed of one or two parts of the extract of rhatany to five of the butter of cacao.

Part iii., p. 110.

Artificial Anus—Operation for.—Vide Art. "Intestinal Obstruction."

Formation of Artificial Anus.—M. Amussat would extend his operations to almost every variety of malformation of the rectum. He would apply it in every case of true imperforation of the rectum, in which it was possible to reach the gut, with the exception of those only in which the anus, otherwise well formed, is obstructed by a mere superficial membrane; but if the septum, however thin and yielding, however it may be distended by the accumulation of meconium, is situated *above* the anus, he insists that it is insufficient to destroy the septum, which method fails because of the difficulty of keeping an opening above the anus dilated; and M. Amussat therefore lays it down as a rule, that in such cases we should operate as if there was no anus, as if the rectum was completely deficient throughout the entire extent of its anal extremity; and cut backward, and draw the rectum, not downward to the anus, but directly backward. When there is any considerable interval between the gut and the external parts, it would be difficult, if not impossible, to draw the rectum downward, so as to make it adhere to the external orifice, but the sigmoid flexure of the colon will enable it to be drawn down more or less from one to two inches. This elongation, therefore, will frequently extend to the neighborhood of the coccyx, and M. Amussat, in his third memoir, recommends that the artificial orifice should generally be made as near the coccyx as possible. The reviewer of his work, however, does not agree with this opinion, but maintains that whenever the natural situation can be taken advantage of, it is better to do so, in order to make use of the sphincter muscle. Another mode of forming an artificial anus is that which is commonly called Callisen's, which consists in opening the colon in the left lumbar region, where it is not entirely covered by peritoneum. M. Amussat has also improved this method, as well as extended it to the ascending colon. Instead of making a vertical incision in the left lumbar region, he makes a transverse one, four or five fingers' breadth long, midway between the last false rib and the crest of the ilium; and he divides the deeper parts, or even the skin, if the patient is fat, crucially, in order to gain room. The advantages of this mode of operating are—1st, that it makes the operation easier and more certain, and avoids the danger of dividing the lumbar vessels and nerves; 2d, that it facilitates finding and opening the intestine without wounding the peritoneum; and 3d, it enables us to establish the artificial anus more anteriorly; with a view to which the opening in the intestine should be drawn forward and secured to the anterior angle of the wound. M. Baudens, another French writer, objects to this mode of operating, and recommends an oblique incision instead of a transverse one. He also speaks of having discovered a certain way of ascertaining which is the colon, a step which is sometimes exceedingly

difficult. His method consists in introducing a very fine needle, furnished with a canula, and on withdrawing the needle, either the gas escapes or the canula is soiled with feces.

Part x., p. 161.

Artificial Anus.—The operation for artificial anus has excited as much interest as most other points of operative surgery; especially the opening of the colon in the lumbar region. In a very able review of the whole subject, written by Dr. Williams, of Dublin, in the "British and Foreign Medical Review," a very important question was left undecided, viz. when an artificial opening into the rectum was made in the perineum, or on one side of the sphincter muscle, would the patient be able to retain his feces? Sir P. Crampton, in an interesting discussion at the Dublin Surgical Society, supplies this desideratum by giving the result of a case operated on by Amussat nine years ago, at a point between the coccyx and anus. In this case the artificial anus contracted to such a degree that it was necessary at last to enlarge the orifice, and even daily to employ dilatation to keep the passage open; so that the danger in this case was not in the opening being too large, but, ultimately, in being too small; and we suspect that this must generally be the case unless the greatest care be used to keep the orifice dilated.

Part xi., p. 169.

Peculiar Ulcer of the Anus.—The symptoms which characterize this disease may be summed up in a very few words. It is ushered in by an uneasy sensation at the anus, increased on going to stool; as the disease progresses, the sufferings during the act of defecation become daily more aggravated, conveying to the patient a sensation of scalding, or of a red-hot iron being introduced into the gut; on the completion of the act of defecation some relief is felt by the patient, but after the lapse of a few minutes the sufferings are renewed, and continue unmitigated for a length of time, varying, in different cases, from four to nine or ten hours, when they gradually abate, and at length leave the patient at perfect ease, until a renewal of the necessity for the passage of the feces causes a return of the sufferings.

On proceeding to the examination of the anus, we are first struck by the absence of that permanently contracted state of the orifice which is an almost invariable accompaniment of fissure. Generally speaking, in the disease under description, the orifice is as lax as in the healthy state, or if it be in any case contracted, it is but slightly so; this lax state of the orifice allows the examination to be made with much less pain to the patient, and equally less difficulty to the surgeon, than in the case of fissure—circumstances which cannot fail to attract the attention of any one who has had experience in those diseases.

If the finger be now introduced sufficiently far to be on the level of the upper part of the sphincter, laid flat on the mucous membrane, and carried over its lateral and posterior parts, its extremity will sink into an ulcer, rather deep, and of a size varying from half an inch to an inch in diameter; the dipping of the extremity of the finger, and the sensation which the rough surface of the ulcer conveys to it, indicate satisfactorily the existence and situation of the ulcer, which is confirmed by the sensations of the patient. We also find in this disease, that, immediately on the pressure being made on the surface of the ulcer, the finger is grasped by the contraction of the sphincter muscle.

The treatment which this ulcer demands is identical also with that so suc-

cessfully practised in cases of fissure, the symptoms of which it so closely resembles, namely, division of the sphincter muscle, an operation, the performance of which is devoid of danger, and, in the present disease, owing to the laxity of the anal orifice, of difficulty also, the only instrument required being a long probe-pointed bistoury, either slightly curved or straight, which, having been placed flat on the index finger of the left hand, is, by the introduction of the finger, carried into the rectum; the extremity of the finger having sunk into the ulcer, is carried to its upper edge, where it is allowed to rest; with the right hand the bistoury is now pushed upward, until it also touches the upper edge of the ulcer, the bistoury is then carried boldly downward and outward, cutting completely through the substance of the muscle, and making the wound and the ulcer one continuous surface, as recommended by Mr. Colles. The after-treatment is sufficiently simple; a dossil of lint dipped in oil, or smeared with simple cerate, is to be introduced into the gut, which, in a few days, should an ichorous discharge, which in some cases occurs, demand it, is to be replaced by a lotion of *ol. olivar. et. liq. plumbi subacet.* This will, generally speaking, be sufficient to complete the cure; in some cases, other mild applications may become necessary, but never any of a severe character.

Part xii., p. 205.

Artificial Anus.—After the bowel has been strangulated so long that gangrene of a portion has taken place, and an artificial anus is formed, either by the knife or by sloughing, and the stools are passed out of the opening, try the very ingenious method adopted by Mr. Trant, of Dublin, which consists of introducing a small silver tube (made by Mr. Millikin, of Dublin), and pressing back the intermediate portion of the intestine lying between the abdominal and anal position of the artificial opening, and thus bring the parts into such relation that the stools can pass into the natural channel. In this way the opening may be gradually closed, and the functions of the part restored to the normal state.

Part xiii., p. 262.

Anus—Fissures of, with a Condyloma.—This was a most satisfactory and efficient cure of a most troublesome affection by nitrate of silver. A daily application was made of the solid nitrate, from the 29th of May, to the 19th of June, when the case was cured of both the fissures and the condyloma.

Part xiv., p. 205.

Fissure of the Anus in Children.—Give an enema daily for six or eight days, composed of extract of rhatany, one scruple; and water, three ounces.

Part xiv., p. 206.

Prolapsus Ani.—Dr. Hake advises the employment of Weiss's instrument—an ivory nipple upon a coil of wire of moderate power; this fixed upon an understrap and attached to a belt.

Or, carefully return the bowel after the daily motion, and place upon the anus a pad formed of a piece of sponge, four inches by one and a half, and half an inch thick, rolled up tightly into a coil; and immediately bring the nates together with a broad strip of plaster. *Vide "Prolapsions."*

Part xv., p. 215.

Treatment of Fissures of the Anus.—M. Diday recommends the patient to apply to the anus, night and morning, with the end of the finger, a portion of ointment, about the size of a cherry stone, composed as follows:

Axungie 15 grammes, tannin 1 gramme, increasing the portion of tannin gradually to three grammes or more, according to its effect on the sensibility of the part. To apply it efficiently, the patient should push his finger as far as possible without forcing the sphincter, and there leave the ointment.

Where fissures are situated higher, a solution of tannin may be injected into the rectum with a small syringe. The quantity of liquid introduced should be as small as possible, in order that it may be retained for some time. In both cases, the patient should experience some degree of heat and smarting, continued for some time after the application.

Part xvi., p. 331.

Treatment of Prolapsus Ani.—Keep the patient in bed, and daily after cleansing the bowel out, let a small quantity of solution of sulphate of iron, a grain to the ounce, be injected and retained. If the stomach will bear them, give balsams.

Part xvii., p. 171.

Treatment of Prolapsus Ani.—Apply a ligature round a portion of the mucous membrane, for about twenty minutes, and then release it. Give then an anodyne every night and an aperient every third day, the bowels being kept confined in the meantime. Afterward the rectum pessary may be used for five or ten minutes after each motion.

Part xvii., p. 171.

Prolapsus Ani.—Some cases will be benefited by destroying a portion of the mucous membrane with the *strongest* nitric acid. Or remove a fold or two with curved scissors, and immediately touch the surface of the wound with the acid; care having been previously taken to compress the base of the portion removed, so as completely to prevent any of the divided vessels from bleeding. When an operation from any cause cannot be undertaken, use frequent ablution with cold water, or apply the following ointment: *R. Pulv. hydrarg. nitr. oxyd. ʒiij.; pulv. capsici, gr. v.; ung. cetacei, ʒj. M.* In many old cases, however, mechanical support is the only means that will afford relief.

Part xviii., p. 188.

Prolapsus Ani.—[In mild cases the improvement of the general health by tonics, and attention to diet and regimen, together with the use of mild aperients, and astringent injections into the rectum, will afford relief. But, Mr. Cooper observes:]

In very protracted cases of prolapsus, palliative means may not prove sufficient, and mechanical contrivances may be requisite to return the protruded membrane within the anus; bougies or the finger may be employed for this purpose; but in some instances, the tone of the sphincter may be so completely destroyed that it would be incapable of retaining the intestine even after it is returned; a pessary should in that case be passed into the rectum, and allowed to remain there for a few hours, so as to maintain the loose portion of membrane sufficiently long in situ to allow of its recovery from the congestion arising from its protrusion and exposure to external agency. I have seen an instrument which is worn by the Chinese, who are very liable to prolapsus ani, for the purpose of retaining the bowel within the anus. It consisted of a ball of silver, perforated with holes, to permit of the escape of flatus, and made to unscrew in the middle, so that it could be easily cleaned; this instrument appeared to me to be admirably suited to the purpose for which it was intended. When a pessary is

employed, it should be passed into the bowel *above* the sphincter muscle. And at the same time that mechanical contrivances are made use of, constitutional means should also be adopted for the purpose of improving the tone of the health. A radical cure may be attempted by pinching up several small portions of mucous membrane, at about equal distances from each other, a little above the sphincter, and tying a ligature round each. In obstinate cases, the anal extremity of the sphincter may be divided, with a view of diminishing the opening of the anus. The after-treatment consists in keeping the patient in the recumbent posture, and maintaining for a few days a constipated state of the bowels, to enable the parts to recover from the effect of the operation.

Part xviii., p. 194.

Anus—Fissures of.—Having introduced the left fore-finger into the rectum, make a small opening at the verge of the anus, and through this wound introduce a straight knife (Blandin's knife), guarded at its point and edges, into the submucous cellular tissue, between the mucous membrane and sphincter. Turn the cutting edge toward the muscle, retract the guard, and cut through the muscle as the blade is withdrawn. Then close the external wound, and keep the bowels lax by means of conf. sennas.

Part xx., p. 145.

Anus—Imperforate.—If it could be ascertained beforehand that the rectum was absent in a case of imperforate anus, it would be easiest to perform Amussat's operation, and open the colon in the left lumbar region. But as the absence of the lower part of the rectum, or its distance from the surface cannot be known before operating, the perineal incision is the operation that ought to be chosen. One point in the operation ought especially to be attended to, viz., to bring down the mucous membrane of the gut, and fix it to the lips of the external wound, if it be possible to do so.

Part xxi., p. 204.

Prolapsus Ani.—The disease so called generally depends upon morbid enlargement of the mucous membrane of the bowel. It is easily, safely, and effectually remedied by the use of the ligature; in the application of which it is only necessary to remember that the whole of the diseased growth should be comprehended, and that the threads should be drawn so tightly as completely to arrest all circulation through the included parts.

Part xxi., p. 205.

Anus—Fissure of. It is now well known that a small incision, slightly exceeding the length and depth of the little ulcerated fissure, is sufficient for its remedy, without any after treatment, or restriction from exercise, beyond a day or two of quiet.

Part xxvii., p. 348.

Artificial Anus, treated by Mechanical Pressure within the Rectum.—In a case where the operation for artificial anus had been performed as a temporary resort, the greatest discomfort arose from the feces passing invariably through the artificial opening, and not through the rectum. At length, when life had become a burden to the patient, it was suggested that some substance, as a piece of brown soap, introduced into the rectum, might induce the return of peristaltic action, and the necessary tenesmus for the expulsion of the contents of the canal. The expedient was perfectly successful, and at the end of two weeks the artificial opening was quite healed and the feces passed by their natural outlet.

Part xxviii., p. 200.

Fistula in Ano.—The opening into the rectum from the fistula will generally be just above the internal sphincter, although the probe may easily pass upward to a considerable distance outside the gut; about five or six lines high up will generally be the situation of the orifice through the bowel—we might, therefore, almost detect it with the eye by separating the sides of the anus sufficiently. In operating, pass a director through the fistula into the rectum, and where the internal aperture is near the anus, the director, by being a little curved, can be brought out again at the anus. Then pass a probe-pointed bistoury along the director and divide all the parts between the two openings, including the sphincter. Then stop up the wound for forty-eight hours with dry lint. If the wound heal indolently touch it with a solution of nitrate of silver (3j. to ʒj.) In blind internal fistula, it is best to make it a complete fistula, by making an opening at the side of the anus, in the hard, tender, red part, and then operate as for complete fistula. Sometimes the external point where the fistula exists is not well marked; in this case, a probe or curved director can sometimes be passed through the opening from the rectum till its point is felt through the skin, so as to guide the knife accurately. In blind external fistula a probe bistoury with the front of the end a little sharp and projecting, is passed up the fistula till its point presses against the wall of the rectum, the nail of the fore-finger in the rectum scratches against the end of the bistoury till it pierces the bowel, and then is drawn downward with the finger on the end, dividing the sphincter and all the parts below it.

Part xxx., p. 141.

Diagnosis of Fistula in Ano by means of Iodine.—To ascertain whether the fistulous opening communicates with the rectum, inject a little tincture of iodine up the orifice, and at the same time introduce a finger up the rectum. If there be a communication the finger will probably be stained with the tincture.

Part xxx., p. 144.

Fissured Anus.—Introduce a speculum into the anus so as to bring the fissure into view. Then make an incision through the ulcer, beginning a little above its upper edge and carrying it through its base to a little below its lower edge. These fissures are in reality narrow oval ulcers at the margin of the anus, which look like fissures in consequence of the plicated arrangement of the end of the rectum. In slight cases, touch the fissure with a solution of the nitrate of silver, a drachm to the ounce, or touch it slightly with solid nitrate. This should be done every second or third day, soon after the morning motion; and a bit of dry lint applied well to the fissure after each application. The bowels should be kept open by rhubarb or some mild laxative.

* * * * *

In those very painful ulcerations and fissures of the anus, which used formerly to be relieved by division of the sphincter muscle, Mr. Copeland merely divides or cuts through the mucous membrane by a slight incision; a few of the muscular fibres of the sphincter are necessarily divided.

Part xxx., p. 157.

Prolapsus Ani.—When the integuments around the anus are relaxed and thickened, remove the redundant folds of skin by repeated applications of the scissors, not in a circular direction, but pointed from the circumference toward the centre of the orifice. The horizontal position

must afterward be strictly maintained, the bowels kept quiet for some days. By the contraction which will take place in the treating of the wounds the bowel will be retained. *Part xxxiv., p. 164.*

Artificial Anus—Amussat's Operation.—The region in which the operation is performed is bounded above by the last false rib; below, by the crest of the ilium; behind, by the lumbar spine; and in front, by an imaginary mesial lateral line. In this oblong quadrilateral space, a horizontal incision should be made, commencing two fingers' breadth to the left side of the spinous processes of the lumbar vertebrae, and carried horizontally outward for about four inches, midway between the last rib and the crest of the ilium. The dissection is carried down until the transversalis fascia is reached: the anterior and middle lamellae of this are opened, and the edge of the quadratus lumborum exposed. The real difficulties of the operation now commence: the layers of cellulo-adipose tissue which cover in the colon, and the contiguous reflexions of peritoneum must be carefully dissected. If the gut is distended, this tissue will be pushed well aside, and the intestine may easily be reached; but if it be contracted and empty, it will be found to recede somewhat from the surface and to lie at a great depth. The gut can at once be recognized from any other structure, by its greyish-green hue, the longitudinal striae on its posterior surface, and its thicker feel. When exposed, a needle, carrying a strong whipcord, should be passed through it in a vertical direction, and the gut being thus drawn well to the surface (that its contents may not be extravasated into the loose cellular tissue around it), may be properly opened and stitched to the edges of the wound. *Part xxxv., p. 105.*

Imperforate Anus.—The rectum having been opened, two modes of procedure have hitherto been in vogue: either to leave the parts to granulate and a passage established when the mucous membrane is not directly continuous with the skin outside,—or to seize the gut (which may be situated an inch or two in depth from the surface) and drag it down to the external parts. In the first case, gradual contraction takes place, and the passage often again becomes obliterated. In the second case, death often ensues, from peritonitis, or pelvic cellulitis. You will avoid both these evils by extending the process of drawing the rectum downward over a considerable time, using gentle traction, introducing the forceps at certain intervals, and gradually endeavoring to accomplish the end.

Part xxxvii., p. 152.

Treatment of Pruriginous, Papulous, and Eczematous Eruptions of the Anus, etc.—Modern observers have classed resinous and empyreumatic substances, so extensively employed by the ancients, among the most powerful local applications in the treatment of herpetic eruptions. Thus, purified tar, mixed with lard, in the proportion of from fifteen to forty-six grains of the former to an ounce of the latter, is daily used in the wards of the Hospital St. Louis, as the resolvent, *par excellence*, of scaly eruptions, and as a valuable desiccative in chronic, eczematous, and impetiginous affections. Since the introduction of glycerine into therapeutics, M. Gibert employs this substance as an excipient, in preference to lard. To facilitate its use, the mixture is thickened by the addition of starch. This preparation possesses the advantage over ordinary ointments made with a fatty excipient, that it is removable by water.

The following is the formula of the *glycérôle de goudron*: Glycerine one ounce; purified tar, half a drachm; and, with the aid of heat, powdered starch, half an ounce. With this quantity of starch, we obtain an ointment of thin consistence, and easily spread. The mixture should be perfectly homogeneous.

This application allays itching, dries up excoriations, checks exhalation, dissipates slight cutaneous phlegmasiæ; it acts, in a word, as an astringent and resolvent, without producing irritation. Thus, eczema rubrum, impetigo, intertrigo, prurigo of the scrotum and anus, acne rosacea, and subinflammatory mentagra, are, under its influence, most advantageously modified.

Another product, the *huile de cade* (oil of pitch) M. Gibert uses frequently; but as the empyreumatic properties which this resinous oil possesses in a much higher degree than tar, are such, that it can seldom be applied in a state of purity, he usually mixes it with oil of sweet almonds, or with cod-liver oil. The following preparation is used, under the name of *huile cadée*, in the Hôpital Saint Louis: Cod-liver oil, two parts; oil of pitch, one part. This application possesses very efficacious resolvent and drying properties. M. Gibert has seen eczemas, which had continued for months in a stationary, red, excoriated, and oozing condition, notwithstanding the external and internal use of preparations of sulphur, heal under the influence of this combination.

It is particularly in cases of obstinate pruriginous, papulous, and eczematous eruptions of the anus and genitals, which are so often such a source of annoyance to both the patient and the practitioner, that M. Gibert has most frequently derived benefit from the local use of oil of pitch. He adds, in such cases, the diligent use of cold hip-baths, and, in order to alter the diathesis on which the eruption depends, the internal employment of Dr. Boudin's arsenical liquor, modified in the following manner: Distilled water, one pint, arsenious acid, three quarters of a grain; dissolve with the aid of heat. The mixture is divided into six vials, each of which is marked for two days; half a bottle to be taken for a dose each morning, fasting, with the addition, at the moment the medicine is swallowed, of a cup of chicory, sweetened with honey. M. Gibert states that he has seen eruptions of several years' standing, and which had resisted the use of thermal waters, and of many other remedies, yield in a few weeks to this mode of treatment.

Part xxxix., p. 185.

APERIENTS.

Aperient Biscuits.—R Scammonia, 3j.; Saponia Venet., gr. v.; Sacchari Albi, gr. ix. M. These ingredients are to be rubbed down to a fine powder, and mixed with one ounce of powdered biscuit. The mass is then to be kneaded, with the aid of a few drops of water, to a stiff paste, then dried in the air, and weighed out into portions of 5x. Of this mass 3j. contains gr. vj., of scammony resin. Scammony resin is not unpleasant to take, rubbed down with sugar. Eight grains of the resin are sufficient to produce several evacuations in an adult; six grains are sufficient for an individual of about fifteen years; four grains for a child of seven or eight

years; two grains for a child of two years. Scammony is one of the best anthelmintics. *Part xii. p. 94.*

Agreeable Mode of taking Senna.—Dr. Linthner says, that senna leaves (one or two drachms to one or two cups of water) should be allowed to infuse all night in cold water. With the strained infusion coffee is prepared next morning, as if with water; and an aperient which does not taste of senna, and does not cause griping, is thus produced. *Part xxxv. p. 307.*

Aperient.—Employment of *Rhamnus Frangula*. *Vide Art. "Constipation."*

APHONIA.

Hysterical Aphonia.—Allusion is made to various forms of hysterical paralysis; you may have numbness in the course of particular nerves, or paralysis of motion, in some cases putting on the features of hemiplegia—in others of paraplegia. Hysterical aphonia must be regarded as of the same kind, the palsy or weakness affecting the muscles of the larynx. The patient is unable to speak, except in a whisper, and even then not without effort. It often begins and ends suddenly. Sometimes it remains after a severe hysterical paroxysm has passed away. This is a form of local hysteria of very common occurrence, and not likely to be mistaken for any laryngeal disease, for respiration remains quite unimpaired.

Treatment similar to other forms of hysteria. *Part viii., p. 82.*

Treatment by Galvanism.—Case cited of entire loss of voice, following a violent fit of epilepsy, in which other means having failed, at length, about sixteen months after the attack, the voltaic pile was thought of, and a battery of fifty pair of plates was employed. The positive pole was placed over the cervical vertebrae, and the negative upon the parts affected. On the first day two hundred shocks were given, and on the second three hundred, but no perceptible effect followed. Two days were suffered to elapse, and a battery of seventy pair of plates was then used, with which about three hundred shocks were given. The patient was found acutely sensitive to the action of electricity, and a lapse of five days was permitted to intervene before its fourth application, which consisted of four hundred shocks with the latter-named battery.

After six more days the battery of fifty pairs was again employed, and three hundred shocks were given. The same treatment was repeated every two or three days, and then, at similar intervals, four hundred shocks were given with the seventy-pair battery. The voice, meanwhile, and the motive powers of the tongue and larynx, gradually returned to their normal condition, and after the twelfth application the patient had completely recovered. The deduction drawn by the surgeon who has reported the case, is, that no nervous affection whatever should be regarded as incurable till the electricity in some form has been tried and found to fail. *Part viii., p. 76.*

Causes and Treatment of Aphonia.—A cold or moist atmosphere very

frequently induces this affection in weak and relaxed habits of body, particularly in females. Other causes, as well as humidity, may bring it on as over exertion of the vocal organs, nervous excitement, etc.

The disease is evidently of an asthenic character, hence antiphlogistic treatment is contra-indicated. Stimulants and astringents are mostly to be depended upon, and Mr. Bishop recommends a strong solution of nitrate of silver, applied with a camel's hair brush, before every other application, and he illustrates its beneficial action by the following case, in which he made use of it:

Mrs. H., a professional singer, suffered occasionally from loss of voice, which often lasted from six to eight weeks. On one occasion she was engaged to sing at a concert in the course of a few days, when one of these attacks came on; and she was greatly alarmed at the prospect of not being able to fulfill her engagement. Under these circumstances, I applied to the fauces a solution of nitrate of silver, of the strength of ten grains to one ounce of distilled water, and repeated the application the following morning. Under this treatment the power of the voice returned, and she was enabled to sing at the concert on the third day.

When aphonia arises from nervous excitement, we must look for the origin of the affection beyond the mere office of the soft parts of the vocal tube. This condition may often be traced to the nervous centre, most commonly arises from an asthenic state, and is often associated with a hysterical disposition. In some hysterical cases, however, an opposite state to that of aphonia presents itself. A patient was placed under my care, who uttered a constant involuntary bark, like that of a dog, very loud and discordant. It need scarcely be mentioned that no benefit can be expected to result, in such a case, from merely local treatment. Sudden alarm and over excitement will often cause aphonia. When this is produced by an altered state of the nervous functions, galvanism is said to be beneficial.

Part xiii., p. 45.

Loss of Voice—Inhalation of the Fumes of Ammonia for.—Vide Art. "Asthma."

Aphonia of Five Months' Duration, Successfully treated.—The patient was placed under medical care, January, 1846, for catarrh, which terminated successfully, except for the entire loss of voice; for which she was treated with emetics, aperients, mercurials, iodide of potassium, cinchona, and astringent acidulated gargles, until June 25th; and on being sent to the sea-side, the inhalation of the vapor of iodine, from a Wolff's bottle, for fifteen minutes twice a day, and the following mixture:

R. Quinise disulph., gr. j.; acid iodic, gr., iij.; tinct. aurant., ʒss.; syr. aurant., ʒj.; aq. destillat. ʒviss. M. st. haust. ter die.

July 2d. Voice audible. 10th. Voice natural, and enunciation full and clear; after this, the voice continued permanently good.

Part xiv., p. 132.

Case of Loss of Speech Cured by Galvano-puncture.—In 1813, R. P., then aged forty-seven, was affected with a loss of sensation and movement, in consequence of a great fright. Recovering by little and little, she regained the use of her legs, but did not recover that of her arms and head, which remained paralyzed from that time. From that moment she could

not articulate a single word. The tongue, which remained immovable between the teeth, appeared also to be atrophied.

On the 21st of May, 1836, a metallic needle was introduced into the neck, directing its point toward the occipital branch of the first cervical nerve; then it was brought into connection with the zinc pole of a voltaic pile; and holding the tongue, elevated and stretched out on a sheet of the same metal, the circle was closed by presenting to that organ the knob of a brass director. The patient showed, by quickly drawing herself away, that she had felt the shock. The experiment was repeated and the effect was more marked than before. She gained immediately the power of lifting her tongue. At the end of three other shocks the patient exclaimed: "Oh, Dieu!" and could answer some questions in an intelligent manner, although with some difficulty. She also became able to move her tongue from side to side.

The next day, after some shocks given in the same manner, M. Camino commenced to vary the points of contact, and to give the electricity different directions.

Two days of repose employed in exercising the organs, sensibly rendered the faculty of pronouncing and articulating sounds easier and more accurate.

On the 10th of June, she complained, without obvious cause, of pain in the head and a general feeling of weight, an ailment which was dissipated by a bleeding. After some more sittings, not only was her speech recovered, but also the activity of the other paralyzed parts, which became quite fit to exercise their functions. *Part xvii., p. 61.*

Aphonia Cured by Inhalation of Benzoin Fumes.—[A lady who had never been able to speak above a whisper for more than twelve years, the larynx at the same time appearing to be quite healthy, was advised to inhale the fumes of benzoin burnt upon a card. After a most persevering continuance of the remedy for nearly four months, she spoke in a good laryngeal tone, not sweet indeed, but tolerably strong.]

The fumigating cards are made in this manner: A sheet of thick white blotting paper is brushed over with a saturated solution of nitre until it is thoroughly wet, and when dry the compound tincture of benzoin is applied in the same manner. Each of these applications is repeated more than once if necessary. When thoroughly dry, the paper is cut into slips, three inches long by one and a quarter wide. One of these being lighted at the corner, burns without flame like tinder, emitting a dense white smoke, consisting principally of benzoic acid and some particles of nitre, which are thrown off by the crepitation of the crystals. When used for remedial purposes, this smoke should be inhaled by holding the head over the burning card. *Part xvii., p. 93.*

Aphonia.—In cases of aphonia arising from chronic inflammation of the larynx and fauces, paint over the throat, externally, a strong alcoholic solution of iodine (3j. to ʒj.). Where there is a thickened and mammillated state of the pharyngeal mucous membrane, a solution of silver, topically, is more preferable. *Part xxviii., p. 96.*

Aphonia.—If you have reason to believe that it depends upon paralysis of the genio-glossi and the muscles connected with the chordæ vocales, you

may derive wonderful benefit from inductive electricity, one pole being placed on the tongue and the other on different parts of the neck.

Part xxxiv., p. 1.

APHTHA.

Aphthous Ulcers of the Mouth.—Vide Art. "Mouth."

Treatment of Aphtha.—[Speaking of that form of aphtha which depends upon impaired nutrition of the system generally, and often arises as a consequence of artificial feeding, Dr. West says:]

"One point of considerable moment, and to which less care than it deserves is usually paid, is the removing from the mouth, after each time the infant is fed, all remains of the milk or other food which it has taken. For this purpose, whenever the least sign of thrush appears in an infant, the mouth should be carefully wiped out with a piece of soft rag, dipped in a little warm water, every time after food has been given. Supposing the attack to be but slight, this precaution will of itself suffice in many instances to remove all traces of the affection in two or three days. If, however, there be much redness of the mucous membrane of the mouth, or if the aphthous spots be numerous, some medicated topical application is useful.

Various detergents have been recommended, among which the mel boracis, and a mixture of the Armenian bole, with honey, are very frequently employed. An objection, however, has been raised to any application into the composition of which honey or other saccharine matters enter, on the ground that the tendency of those substances to pass into a state of fermentation will make them favor rather than prevent the formation of *confervæ* in the interior of the mouth. Without determining the precise value of this objection, it will yet, I think, be found that water is the best menstruum for any local application to the mouth. It is my custom to dissolve ℥j.–3ss. of borax in ℥j. of water, and to direct that after the mouth has been carefully cleansed with warm water, the lotion should be applied to it on piece of lint or soft linen. In the milder forms of the affection, this borax lotion usually answers every purpose. Should it, however appear insufficient, a solution of gr. v. of the nitrate of silver in ℥j. of distilled water, may be employed in the same way twice a day, while at other times the solution of borax may be used in the manner just directed.

Part xviii., p. 111.

APOPLEXY.

In no case of apoplexy or paralysis should a careful examination of the heart's action be omitted.

If we are called to a case of diseased brain, accompanied by hemiplegia, or symptoms which would at first sight indicate congestion or inflammatory action, it is our duty immediately to ascertain if these symptoms may not be owing to disease of the heart or valves; and if we suspect that there is disease of the aortic valves, causing hypertrophy of the left ventri-

cle, and preventing the blood reaching the brain with sufficient ease; or if we suspect either a too open or a too contracted state of the mitral valves, causing in the former case a regurgitation of blood from the ventricle, and in the latter case a difficulty in its course into the ventricle from the auricle—we must be on our guard not to deplete but to stimulate; as is very clearly shown to be correct practice by Dr. Law in several cases which he relates. He affirms that if there be obstruction to the flow of blood before the arteries going to the brain are given off, that disease of that organ will not be owing to a fullness of blood in it, but to a deficiency; but, on the other hand, if obstruction exist beyond the origin of the cerebral arteries, then the regurgitation of the arterial blood may very probably be toward the brain.

Part i., p. 67.

Treatment of Certain Diseases of the Brain.—There are no cases which require more careful discernment of pathological condition than those which simulate apoplexy from compression of the nervous centre. Dr. Corrigan was the first to point out that many cases which were usually treated by antiphlogistic means were in reality better cured by stimulation. These cases were chiefly owing to a diminution of blood in the brain, from valvular disease of the left ventricle, and other diseases of that viscus.

From his cases Mr. Copeman draws the following inferences:

1. That apoplectic and paralytic affections may take place in an extreme degree without organic disease of the brain.
2. That they often occur from other causes than pressure on the brain.
3. That bleeding, so far from being always necessary, is in many instances prejudicial.
4. That the effort of vomiting is not so prejudicial in these diseases as is generally supposed.
5. That counter-irritation, both external and internal, is a valuable means of affording relief to the symptoms immediately succeeding the attack.

Mr. C. offers the following opinion: "If I may be allowed to give an opinion, I should say that bleeding is unnecessary or prejudicial where the patient is 60 years of age or upward; where the pulse is feeble, very frequent, intermitting, slow, or large, and inclined to double beat; (I have always found a pulse with double beat indicative of a state of system best relieved by diffusible stimuli;) where the respiration is labored and accompanied with cold perspiration; where there is great mobility of the nervous system with weak muscles, whether the body be thin or corpulent; and when the attack comes on soon after a full meal, or after great bodily or mental fatigue."

Part iii., p. 34.

Apoplexy Caused by Inanition, Dyspepsia, Gout, Diseases of the Heart, Diseases of the Capillaries, etc.—The intimate connection between plethora and apoplexy which exists so often, has too long blinded the eyes of practitioners to the fact that exactly opposite causes may produce similar effects; and hence we too often find, that when a patient is seized with a fit of apoplexy, whatever be the cause, whether owing to plethora or exactly the reverse, the practitioner thinks he is neglecting his duty if he do not bleed the patient copiously, and employ other means of depletion. It is now, however, becoming better known, that inanition and anæmia, morbid conditions of the stomach and intestines, dyspepsia, cachexia, gout, hypertrophy with augmented impulse given to the arterial blood, or in dilatation

of the heart and disease of the valves impeding the reflux of the blood along the veins, may all be causes of the affection, and will require different modes of treatment.

Even in cases of injury of the brain, as in concussion, too much venesection may give rise to symptoms which it will be difficult to distinguish from those produced by the accident itself. Sir Benjamin Brodie remarks on this subject, "Where bleeding has been carried to a great extent, symptoms frequently occur which in reality arise from the loss of blood, but which a superficial observer will be led to attribute to the injury itself. Repeated copious blood-letting, is of itself adequate to produce a hardness of the pulse which we shall in vain endeavor to subdue by depletion." And almost every practitioner is aware, how many cases of paralysis, apparently resulting from apoplexy, arise from a waste of nervous matter, or from a too great exertion of the mental power. The treatment, then, should consist in carefully restoring the system to its state of equilibrium by recourse to those means adapted to the particular cause. *Part vi., p. 37.*

Apoplexy Dependent upon Disease in Remote Organs.—The dependence of apoplexy upon disease in remote organs is a subject of much interest. Its occurrence in this kind of connection with pneumonia, is illustrated in the following case:

A. B., a large, full, healthy-looking man, aged 54, in the spring of 1844, was brought into Carroll's ward of the Marylebone Infirmary, in a state of insensibility, and died almost immediately. It appeared that he had been employed in the workhouse in bodily labor, and seemed in good health up to the moment of his seizure with apoplexy, that morning. He was described as having the day before eaten an enormous dinner of pork, etc. He went to bed apparently well.

Autopsy.—The membranes of the brain were healthy, but the convolutions flattened. A very large coagulum, with some fluid blood, distended the lateral ventricles. The basilar artery was of great size; slight appearances of ossification in many arteries of the brain. The aorta was of great size, but healthy; the heart normal. The right lung almost uniformly in a state of red hepatization; portions from every part of it sinking in water. The left lung gorged with blood, but perfectly crepitant. The stomach very large; no solid contents in it: its walls thin: its surface having a color exactly similar to that of coffee-ground vomiting. The other viscera healthy. *Part ix., p. 26.*

Apoplexy of New-born Infants.—May arise from want of duly oxygenated blood in consequence of imperfect closure of the *foramen ovale*.

After birth, then, a portion of the lungs alone becomes filled with air, while the remainder continues in a fetal state.

In cases of this kind, and indeed in all, there is one general rule to be observed, never to tie the cord as long as pulsation exists in it, until respiration is well established; and never to rest satisfied in any case, until the child, by its loud cry, the "vagitus intra muros" of the Scotch law, convinces us that its lungs are fully able to perform their function. At a later period, in instances such as those recorded, our treatment must consist in the use of stimulants internally and externally, together with remedies directed against the apoplectic and inflammatory consequences to which the brain and lungs are both liable. In detracting blood from the chest, the best situation to apply leeches is under the axilla, as the subcutaneous

venous plexus there communicates directly with the vessels of the thoracic cavity. *Vide Art. "Asphyxia."* *Part ix., p. 32.*

Asthenic Pulmonary Apoplexy.—Dr. Byron advocates the treatment of cases of *asthenic pulmonary apoplexy* by *tartar emetic* combined with *opium*.

"It is well known to medical men," says Dr. Curry, "that when either emetic tartar, antimonial wine, or ipecacuanha in powder is given, joined with opium, each counteracts the effect which the other would have had, if administered alone; the opium generally preventing the emetic tartar, etc., from exciting vomiting, and the latter, in their turn, entirely suspending the stupefying power of the opium. The consequence generally is, that they operate upon the skin, and occasion a very copious sweating."

Part xi., p. 49.

Congestive Pulmonary Apoplexy.—This form of pulmonary apoplexy usually falls upon individuals who have passed the meridian of life, those whose constitutions have been more or less impaired by over exertion; by intemperance, or by the inhalation of damp, noxious, or unwholesome atmospheres.

A gentleman, æt. 43, of sanguineous temperament, accustomed to violent exercise, suddenly changed his mode of life, discontinued all but carriage exercise. The first indication of this mode of life disagreeing with him, was the appearance of furunculi on the hands and body. After about four years his legs felt less strong, and he had general lassitude, with aching pains about the knees and ankles.

He one night awoke shortly after falling asleep, finding his mouth full of blood; this was followed by five or six discharges of the same kind in quick succession: the entire amount of blood discharged was probably about three ounces. His pulse at this time was 70, moderate and regular; had no heat of skin, hurried respiration, nor the slightest indication of indisposition beyond what has been mentioned. His chest was perfectly clear on percussion; his respiration natural, except a mucous rattle in the large bronchi, owing to portions of blood which were discharged in a coagulated manner during the night. About fourteen ounces of blood were taken from his arm without producing any sensible effect upon his pulse, or in any other way; his bowels were open and a blister laid upon his chest; the acet. plumbi, with P. ipec. C. and mineral acids, were also given. Animal food and wine were laid aside; he was confined to bed for the following week; his head and shoulders were elevated, and his apartment ordered to be kept cool. In this way he progressed most favorably. On the second and third days there was a slight return of fresh bleeding; but although pieces of coagula were thrown up for about a fortnight, they appeared to be portions of coagulated blood which lodged in branches of the bronchi; this was evident from their bearing the impress of the air-tubes which contained them. Small bleedings from the arm were resorted to every eight or ten days, followed by a small blister for upward of two months, when he gradually resumed his ordinary avocations. The bleedings, however, and the blisters, were resorted to from time to time, but at longer periods of intermission, for six months afterward. Little more than twelve months from the first seizure, a second discharge of blood, in all respects resembling the former one, took place; he awoke as he did then, with his mouth filled with blood, which also soon coagulated.

No fresh discharges of blood took place at the end of three weeks, and only three previously; and on no occasion did the quantity spit amount to more than two ounces. Fearing the existence of some organic disease, of which the hemoptysis was but a symptom, his chest was closely examined by almost every medical man of eminence in Dublin, and no disease could be discovered. In addition to the plan of treatment adopted on the first occasion, wine and beer were altogether prohibited; he was ordered to remove his dwelling to a dry, elevated locality; to avoid fatigue or great bodily exertion; and should a sense of pain, formication, or constriction arise in any part of his chest, a moderate bleeding should be taken from his arm; a blister laid upon the affected part, and all other means of relief formerly resorted to, derivatives, etc., resumed and repeated as might seem to be necessary. An occasional blister was laid upon his chest during the following year; no wine nor malt liquor was used by him for five years, and then but sparingly. The foregoing rules were strictly adhered to; and now, thirteen years from the date of his first attack of hemoptysis, he is in the enjoyment of perfect health, and possesses greater vigor of mind than at any former period of his life.

Part xi., p. 50

Prevention and Treatment of Apoplexy.—[There are few diseases, the pathological diagnosis of which is of more consequence than apoplexy, the different kinds of this affection requiring diametrically opposite mode of treatment—sometimes an antiphlogistic, and at other times a stimulating kind of management. In speaking of the causes of apoplexy, and its effect, Dr. M. Hall first mentions mental emotion, and illustrates it by the following cases:]

A lady parted with her son, on his appointment to India; she became afflicted with apoplectic symptoms, and most complete hemiplegia. Another lady watched a daughter in a dangerous illness; she was seized with hemiplegia of the arm. A gentleman under the immediate influence of painful tidings in reference to property, was seized with ptosis, paralysis of the rectus externus, and immobility of the pupil of one eye.

[*Muscular effort* is next mentioned as one of the causes of cerebral seizure—also a morbid condition of the stomach—and in illustration of the latter, Dr. M. Hall observes:]

A short time ago I was requested to see a young man, who, after eating heartily of pork at supper, had gone to bed and risen the following morning free from ailment, but suddenly lost the mental powers, the power of articulation, and the use of the arm and leg. It was a case of severe hemiplegia. In many cases, the effect follows the exciting cause more speedily; in this instance, the hemiplegic seizure occurred soon after rising.

[A constipated and loaded state of the large intestine is also to be classed among the exciting causes—of the predisposing causes Dr. M. Hall classes hyperæmia, or a state of plethora, as the first; but it may also be caused by just the opposite of this, viz.: anæmia, or more correctly, hypoxæmia; in speaking of this state of the system as a cause of apoplexy, he observes:]

A lady, who was a patient of the late Dr. Denman, was absolutely blanched by the hemorrhage proceeding from a polypus uteri of an intractable character: in the midst of this anæmia she suffered from an

attack of apoplexy, and hemiplegia, which terminated fatally; and on a post-mortem examination, it was found that laceration had taken place in one of the hemispheres of the brain, with the effusion of blood! A patient of Mr. Hammond, of Brixton, had severe uterine hemorrhage during parturition, succeeded by hemiplegia. A lady, drained by intestinal hemorrhage, has greatly lost the use of the left arm and leg.

It is plain that a state of general anemia does not protect the patient from local congestion of the brain.

Of all the secretions, the inefficient or abnormal separation of which from the blood induces the most marked predisposition to the apoplectic seizure, that of the *urine* is the most momentous.

In diabetes, in albuminuria, the patient frequently passes suddenly into the apoplectic state. In other affections of the urine, there are other scarcely less formidable tendencies to cerebral disease. And if the blood may be in an abnormal condition for want of the processes of purification, it is also subject to be unhealthy in those cases in which the supplies are not healthy. Such are those states of defective and abnormal digestion and assimilation which occur in dyspepsia, with its effects, gout, furunculosis, carbuncle, and urinary deposits, and other affections, etc. In all these cases there is danger of apoplexy and paralysis from cacœmia.

[On the preventive treatment, Dr. Hall remarks:]

The real principle of prevention of the apoplectic or paralytic seizure, is that of inducing a state of equilibrium, in regard to plethora or inanition; and of health, in regard to the general tone, habits, and secretions.

[With respect to actual treatment, we must pay especial regard to the cause of the malady; under this head Dr. M. Hall observes:]

Besides that of the condition of the general system, the questions—whether the cerebral affection be one of intravascular congestion or extravascular effusion—whether the substance of the brain be compressed or lacerated—is of the utmost moment. In the former case, there is great tolerance of loss of blood, and the detraction of much blood is requisite; in the latter, blood-letting is neither well borne nor required; the system is under the influence of shock, and much cautious watching and treatment are requisite. When there is plethora or hyperæmia as the cause of the threatening of an attack of apoplexy or paralysis, the remedy, the safety of the patient, consists in—depletion. How are we to be certain of the fact?

There is a symptom of great importance, when it can be clearly ascertained to exist. It is the occurrence of vertigo—1, in the stooping, or, 2, in the usually erect position, especially when these are suddenly assumed. One patient turned giddy when he pulled on his boots; another could not bear to look up to the ceiling of the room. In both these cases the diagnosis was pretty distinct; but in another case, no such event has been noticed. What is then to be done?

There is a resource, in such a case, which is of immense value. There is no case in which the patient, if bled from a good orifice, in the erect posture, bears to lose so much blood before syncope takes place, as that of real hyperæmia and congestion of the cerebral vessels: there is no case in which the full, not to say the lavish, detraction of blood is so urgently necessary. On the other hand, the case of vertigo, and other symptoms of cerebral affection arising from dyspepsia, neither bears the loss of much

blood, taken under similar circumstances of posture, etc., nor requires it. In a doubtful case I propose to adopt this mode of blood-letting: 1st, as a guard at once against the inefficient and the undue loss of blood; and, 2d, as a diagnosis, and as a prompter of our ulterior proceedings.

Part xiii., p. 46.

Threatenings of Apoplexy and Paralysis.—These threatenings consist in a seizure of vertigo, loss of recollection, confusion of ideas, with a tumid purple countenance, which may pass off and be forgotten, or may again and again recur, until it ends in the organic apoplectic seizure.

When these "threatenings of apoplexy" occur, corresponding to what Dr. Hall terms "paroxysmal apoplexy"—in the actual attack, bleed instantly, and give an effectual emetic, enema, and purgative. Afterward let the diet be more carefully regulated, any discoverable source of irritation removed, business entirely suspended, and all emotion avoided. "The remedy of remedies is travelling."

Part xviii., p. 92.

Treatment of Apoplectic Symptoms arising from Disordered Liver.—When we review the comparative analysis of the effete matter thrown off by the liver and kidneys, and observe the large amount of carbon and nitrogen which these organs separate from the circulation, it need not be matter of surprise that similar disturbances arise in the head and the nervous system, generally from a gorged and torpid liver, as are seen to occur from urea and other elements of urine being pent up in the system, from degeneration of structure in the secreting portions of the kidneys.

Why should not the elements of bile, so long as they circulate in the system, and are not duly and actively eliminated by the lobules of the liver, be considered equally as poisonous to the nervous system as is urea in ischuria renalis, or is laudanum when taken for a suicidal purpose?

It has repeatedly happened that a bulky, strong, and perhaps plethoric laborer seeks relief amongst the casual patients in the out-door department, complaining of a distressing sense of giddiness, fear of falling down in the streets, tinnitus aurium, sleepless nights; or else the very reverse, heaviness, and disposition to sleep at all hours of the day, if he only sits down for a few minutes. Such symptoms, it must be acknowledged, are too often assigned as the precursor of apoplexy, and the man is actively bled, cupped, and blistered. No observing practitioner will deny that such alarming features of a case demand some vigorous and active treatment; but the question at issue is simply this: do such symptoms fade away under the active antiphlogistic treatment so readily pursued by many? Doubtless they do not. Whereas, if, as is usually the practice here, the patient is ordered to take a full dose of calomel, for instance ten grains, and the same quantity of extract of colocynth, and that the latter is repeated three or four times a week in smaller quantities, followed by a cathartic draught; and, further, if the alvine secretions are observed to pass from a dark mahogany color to that of an ochrey tint, the usual result is the disappearance of all the cerebral symptoms in proportion to the clearing of the loaded gall-bladder and its adjoining ducts.

Part xviii., p. 97.

Apoplexy, Simulated.—When symptoms simulating those of apoplexy arise from mere cerebral irritation, or from anæmia, treat them (after re-

moving the cause, when practicable) by giving tonics, and especially chalybeates, with good diet. Let the patient take moderate open-air exercise, and use such purgatives as will secure gentle and regular action of the bowels. In extreme cases even give stimulants. When the symptoms are of *doubtful* origin, blister and purge for a few days, at the same time allowing a generous diet, until the exact nature of the disease is ascertained. *Vide Art. "Brain."* *Part xix., p. 52.*

Apoplexy.—As there are evidently two distinct kinds, plethoric and anæmic, we must judge, in a great measure, from the distinctive characters. But if neither of these indications are present, it will be most prudent to use local bleeding. Apply cold to the head, administer an active purgative, and, above all, enjoin quietude. *Part xviii., p. 68.*

Apoplexy.—Dr. Todd cautions us against being led away by the popular opinion that in all cases of apoplexy we must bleed. If the patient be full and plethoric, with a strong heart, you may bleed; but if he has been intemperate, or has organic disease of the heart or arteries, or of a gouty or rheumatic disposition, do not bleed. In the majority of cases bleeding is improper; they may be better treated by purging, shaving the head, keeping it cool, and perhaps blistering it. *Part xxxi., p. 64.*

ARSENIC.

Medicinal Action of Arsenic.—The unfavorable states of the system to the administration of arsenic are: 1st. A febrile state, especially the sthenic form of pyrexia, indicated by the usual signs. 2d. A condition the very reverse of this febrile state is likewise unfavorable. 3d. A syphilitic taint. 4th. The existence of organic visceral disease, as a complication of eruptions, an attack of diarrhoea, bronchitis, cynanche, coryza, or severe irritation in any mucous membrane. Certain conditions of the nervous system, especially those connected with dyspepsia, and nearly all other disorders of the general system, generally contra-indicate the use of arsenic; but if the health can be restored by other means, it may afterward be administered with advantage. Mr. Hunt also gives some cautions as to the mode of giving it. He says, as we wish it to enter the general circulation, it should be taken on a full stomach, as it then directly enters the circulation with the chyle, being absorbed by the lacteals; if it is taken on an empty stomach it would be chiefly absorbed by the venous capillaries, and enter the portal circulation. It should be taken after a meal, also, to obviate any irritation it might produce in the stomach and bowels. Again, as arsenic is a cumulative medicine, it should never be administered in increasing doses, otherwise a sudden and sometimes an alarming development of its toxic effects will necessitate an entire suspension of the medicine. The best plan is to begin with five minims of Fowler's solution three times a day, and continue the dose steadily until the conjunctiva or tarsi become slightly affected; then reduce the dose again and again, as the cumulative action becomes apparent in the state of the tarsi.

Part xxii., p. 250.

Arseniate of Soda.—It is stated by many who employ the official preparation of arsenic that it is uncertain in its action, a small dose in some cases acting with violence, and in others a larger dose producing little effect. This is rather referable to peculiarities of constitution in the patient than differences of preparation of the drug.

Mr. Bullock recommends the employment of the arseniate of soda, salt which has all the required characters of great solubility, definite form, and the additional pharmacæutic advantage of being readily made into pills, in such a manner as to insure every pill containing any given fraction of a grain with perfect accuracy. Moreover, it may be kept in a crystalline form, and dissolved readily, as it is required.

The use of arseniate of soda in medicine is nothing new. It is the base of Pearson's solution, which consisted of one grain of arseniate of soda to one ounce of water.

The best method of administering the arseniate of soda is in the form of pills, made up with crumb of bread, or some inert powder.

Part xxiii., p. 28.

Arsenic—Therapeutical Uses of.—The lameness and deformities of chronic rheumatism frequently disappear under a prolonged use of arsenic. It is generally given up too soon. Two cases of this nature are related, in which the most marked benefit was derived from this mode of treatment. About five drops of the liquor arsenicalis should be given after each meal, and continued till the characteristic effects of this drug are produced, when it may be intermitted for a time. Many and obstinate forms of neuralgia are in a similar manner found to yield to arsenic. Arsenic holds the "foremost place" amongst the remedies employed for the cure of chorea. Besides the various forms of skin disease in which its use is so well known, it has been used very extensively and successfully by Dr. Simpson in amenorrhœa and other disorders of the uterus, where iron appeared to be contra-indicated, as well as in that peculiar affection of the bowels which he has described as prevalent among females, and characterized by copious discharge of membranous shreds, and accompanied by great emaciation and a long train of neuralgic and other nervous symptoms. Dr. Simpson places most reliance upon small and very long-continued doses of arsenic, as two drops of Fowler's solution, or a pill containing the sixtieth of a grain of arsenite or potass, taken three or four times a day.

Part xvii., p. 282.

ARTERIES.

Torsion of the Arteries.—Dr. Remak recommends a modification of the operation of torsion of the arteries, which consists in seizing the vessel transversely with a pair of sharp wedge-shaped forceps, and then pressing forcibly, so as to divide the internal coat. The extremity of the artery is then seized with another pair of forceps and twisted, while the torsion is prevented from extending up the artery by the first pair. The vessel is thus less injured than in the common proceeding, and the internal coat, which shrinks after being divided, offers an effectual barrier to the blood. The operation was tested experimentally upon a horse; the carotid was

divided, and torsion, performed as recommended above, was sufficient to restrain the hemorrhage, even when the horse was made to trot briskly.

Part ii., p. 128.

Bleeding from the Temporal and other Arteries.—Mr. Hugh Carmichael suggests a very simple method of obtaining as much blood from the temporal artery, and other small arteries, as we desire. We know that all divided arteries have a strong disposition to contract, and that the divided extremities separate and retract within the sheath, while the orifices ultimately close altogether; at the same time the blood clots both in the vessel itself as far as the next branch, and also in the sheath, so that a complete stoppage is put to the flow of blood. The artery should now be *filipped* in different parts with the finger, and at the same time pressed along its course with the back of the nail, so as to squeeze out any clot which may be lodging; the jet of blood will be again renewed, and will again diminish as at first; the same course must be again adopted, and repeated so long as it may be required. In opening the artery, it is necessary to divide it completely across.

When a sufficiency has been procured, nothing more is required than to wait the next stop, which, if necessary, may be expedited by a gentle pressure with the thumb on the bleeding section of the artery. A small dossil of lint then placed over the wound, and secured with a light bandage, is all that is required to prevent further bleeding.

Part v., p. 124.

Ligature of the Carotids.—It seems to be a general opinion that the carotids and vertebrales may all be tied with safety, provided that sufficient time intervene between each operation, so as to allow of the formation of the anastomosing circulation. But “may both carotids be tied at once without immediate danger to the brain, and with the prospect of a favorable result?” The French Academy have answered this question in the affirmative, and have, moreover, stated that the danger is not with the brain but the lungs. M. Robert states that the vertebral arteries are sufficient for the cerebral circulation, and that ligature of both carotids produces no disturbance, either primary or consecutive, of the nervous system of the senses. Dr. John Reid also proves that “in asphyxia, cessation of the sensorial function does not arise from diminution of the arterial supply of the brain, but from the circulating blood being of a venous character, and so failing to afford to that organ the excitation requisite for the performance of its functions.” M. Robert concludes from his experiments that one great object in treating these cases is in venesection, provided the patient is sufficiently strong. This practice diminishes, in a great measure, the risk of extensive lesion of the lungs. In horses, the ligature of the carotids caused death in a few hours, owing probably to the vertebral arteries diminishing remarkably in size in these animals as they enter the cranium, being there no larger than those of the dog. The result is a congestion of the lungs, which, unless relieved by bleeding, produces fatal apoplexy of these organs.

This prophylactic principle need not be confined to deligations of the carotid alone. In operations on other vessels of the first class—subclavians, iliaes, femorals—important internal organs may be saved, and the number of successful issues materially increased, by a precautionary bleeding to a moderate extent, before the operation, and by a more watchful

and better directed surveillance than heretofore, during the after-treatment. *Part v., p. 18.*

Points connected with the Ligature of Arteries.—Mr. Spence, of Edinburgh, has pointed out an important omission, by different authors and experimenters, on the process which nature adopts, after the application of a ligature, to close the divided ends of an artery. The use of the external coagulum and the deposit of coagulable lymph has never been insisted on as particularly essential to the success of the process. While all writers are now convinced of the utility of the divided internal coat, many of them disagree as to the use of the lymph or coagulum outside the vessel, some, as Mr. Allan Burns, supposing that it is necessary, up to a certain stage of the process, viz., until by its pressure it shall have excited such a degree of irritation as to give rise to adhesive inflammation between the opposite surfaces of the internal tunics of the vessel, to a greater extent than the presence of the ligature alone could produce; others, as Jones, Travers, Guthrie, etc., look upon the clot as merely an adventitious circumstance, which, when it takes place, may assist, but is not essential to the completion of the process. Now although these opinions are more or less correct, we think with Mr. Spence that sufficient stress has not been laid upon the changes which take place outside the vessel. If the changes are attentively observed, it will be found that on the 13th day, when the ligature has fairly come away, the lymph has assumed the appearance of a firm connecting medium uniting the divided ends of the vessel, not unlike the exuberant callus in a fracture; on the 28th day this lymph has become firmer, and the vessel has the appearance of a firm impervious cord. So that we may perceive that this deposit of lymph is not only useful in connecting the divided ends of the vessel, and thus supporting the adhesion of the internal coats at the period of separation of the ligature, but by its pressure it will also diminish the calibre of the vessel, and thereby lessen the impulse of the blood in the neighborhood of the ligature. The conclusion becomes more obvious when we remember the success which attended the application of a ligature at a very short distance from the point where a large branch was given off (case of Dr. Bellingham), where it was applied to the external iliac within half an inch of the bifurcation of the common iliac. *Part viii., p. 120.*

Arched Tourniquet for Wounds of the Brachial Artery.—A man presented himself to Dr. Craig, who had had the brachial artery wounded the previous day in bleeding; the usual signs of aneurismal varix were present. Compression and bandaging were tried to no purpose. Mr. C. wished on principle to avoid operating, which in this case would have been easy.

By pressing the artery with the finger in its course, about the middle of the inside of the arm, pulsation at the tumor and in the wrist was quite suspended. As the patient could bear the necessary pressure, all that was needed was a substitute for the finger.

With this view, says Dr. C., I made a quadrangle with four pieces of wood, sufficiently large to encircle the arm; also a piece of wood two and a half inches broad, and long enough to reach from the shoulder to the elbow. This was laid on the outer aspect of the arm. One side of the quadrangle was fixed to the wood thus placed, at a point opposite to that where compression was to be made on the vessel. A pad was placed over

the artery a little below where the superior profunda is given off, care being taken not to involve the nerve in the compression. The pad was pressed firmly there by means of a rude sort of screw passing from the side of the quadrangle opposite to the one fixed to the wood placed along the arm. The patient was put to bed and placed in a recumbent position, and the arm raised in a perpendicular direction, and supported there by being suspended to the bed-post, and the pad made to press with such force as to suspend pulsation both in the tumor and at the wrist. The pressure was unremittingly maintained during twenty-four or thirty hours, at the end of which time the pulsation and bruissement had completely subsided. The arm was kept raised for some days afterward, with a pad over the tumor, and all excitement and stimulation avoided. One peculiarity of this application is, the provision for preventing any compression of the limb except that which is indispensable over the artery. The piece of wood placed along the arm on its outer side, extending from the shoulder to the elbow, causes the counter-pressure to be diffused over a large surface of the arm, thereby rendering it nearly imperceptible to the patient.

Part xii., p. 165.

Punctured Wound and Ligature of the Posterior Tibial Artery.—Dr. Arnott advises to take the wound as a centre, and cut down upon the vessel, and tie it both above and below the seat of injury.

Mr. B. B. Cooper advises, if it be a case of secondary hemorrhage and there is a good deal of coagula in the parts surrounding the vessel, to tie the femoral artery. When there is a wound in the calf of the leg, with sufficient bleeding to warrant a belief that the posterior tibial artery is wounded, separate the soleus from its attachment to the tibia, cut through the deep fascia, and secure the vessel.

Part xiii., p. 216.

Subclavian Artery—Ligature of.—When there is extensive swelling and suppuration, after the lesion of an artery, it is not advisable to cut down upon it, to tie it at the seat of injury; and when this is the case after wound of the subclavian, it is better to secure the artery beneath the scalenus, before it approaches the tubercle of the rib; it is much higher and more accessible there.

Part xiii., p. 222.

Application of Ligatures to Arteries.—Mr. Guthrie gives the following conclusions, as being a bird's-eye view of his extensive experience on one of the most important subjects connected with surgery:

1. The Hunterian operation for the cure of an aneurism is not applicable to the treatment of a wounded artery, inasmuch as the wound of the artery communicates with the external parts, and nothing intervenes to prevent blood flowing from the wound in its side, or from its cut extremities.

2. When a large artery is divided and bleeds, the wound should be enlarged if necessary, and a ligature placed on both the divided ends; but if the artery be only injured and not quite divided, the ligatures should be applied, one immediately above, the other below the injured part. The artery may or may not then be cut across, at the pleasure of the operator, but the limb or part should be placed in a relaxed position. A bandage should not be applied, and the edges of the wound should be simply brought together by adhesive plasters, which do not extend completely round the limb.

3. No operation is to be performed on any artery unless it bleeds at the

moment of its performance, inasmuch as hemorrhage once suppressed as never return.

4. The intervention of muscular fibres, or of whole muscles, is not sufficient reason for tying the artery at a distant part. They must be divided, if it be possible, to the extent required for a due exposure of the injured artery and its accompanying veins and nerves.

5. If the wound pass indirectly to the principal artery, from the back of the thigh, for instance, to the femoral artery in front, or from the outside of the arm to the humeral artery on the inside, the surgeon may satisfy himself of the part likely to be injured by the introduction of a probe cut down on the vessel opposite that supposed to be wounded, by the most simple and approved method. When the artery is exposed, the probe will point out the spot at which the vessel has in all probability been wounded. Pressure made below this spot on the artery will cause it to be distended and to bleed, if the flow of blood be not prevented from above; the artery is then to be secured by two ligatures, and the lower one should, if possible, be applied first.

6. The tourniquet should never be applied in an operation for aneurism, or for a wounded artery. Compression by the hand in the course of the wounded vessel is allowable.

7. The blood from the upper end of a divided artery, or that nearer the heart, is of a scarlet arterial color.

8. The blood from the lower end of a divided artery, or that which is further from the heart, is of a dark or venous color, when it happens to flow immediately after the division of the vessel. At a subsequent period it may assume more of the color of arterial blood, but it rarely does so for several days after the receipt of the injury, and always flows, or at least until a very late period, in a continued stream.

9. This regurgitation or flow of blood from the lower end of a divided artery is a favorable sign, inasmuch as it shows that the collateral circulation will probably be sufficient to maintain the life of the extremity.

10. The collateral circulation is in almost every instance capable of maintaining the life of the upper extremity when the axillary artery is divided, and the color of the blood which flows from the end of the artery, on its being divided, is not always as dark as in the lower extremity, and it sooner resumes its arterial color.

11. The collateral circulation is not always capable of maintaining the life of the limb when the femoral artery is injured. The best assistance which art can give is to rub the foot and leg in the gentlest manner between the hands for several hours, or even for the first three or four days; relaxing this process very little, even during sleep. When the vein is divided at the same time, or rendered impervious, the limb usually mortifies.

12. The collateral circulation is sufficient to maintain the life of an extremity in almost every case in which an aneurism has existed for eight or ten weeks, although it may be incapable of doing this if the principal artery have been suddenly divided, without any previous disease having existed in the part.

13. The theory and the operation for aneurism are never to be applied to the treatment of a wounded artery which has caused a diffused or circumscribed aneurism, whilst the external wound communicates with

the artery, unless it be impossible or impracticable to tie the bleeding vessel.

14. When an artery has been wounded, and the external opening has healed for weeks or months, so as to give rise to a diffused or circumscribed aneurism, it may be treated according to the theory of aneurism occurring from an internal cause, if the case will permit it without danger, although with this difference, that as the artery is sound the operation may be performed close to the tumor. If any doubt exist as to the capability of the collateral circulation to support the life of the lower extremity, when the external iliac is secured by ligature, the operation should be performed at the injured part by opening the swelling and enlarging the wound, as in the case of a wounded artery.

15. When a circumscribed or diffused aneurism which has formed after a wound has been opened, whether by accident or design, it is placed in the situation of a wounded artery, and should be treated as such. If the aneurism has arisen from disease of the vessel, and the wound or opening into it cannot be permanently closed, the limb is in a worse state than if the artery had been wounded by accident; because a ligature or ligatures placed on a diseased artery are little likely to be successful. They are liable to all the difficulties and inconveniences attendant on the old operation for aneurism. If a case of the kind should occur in a popliteal or femoral aneurism, situated at or below where the artery passes between the triceps and the bone, amputation, if it can be done low down, will be the best remedy. If the aneurism should have formed higher up, and the opening can be closed with any prospect of its healing, a ligature may be placed upon the artery above it; but on the recurrence of hemorrhage, which cannot be restrained by moderate pressure, the artery must be tied below, or recourse had to amputation. It is, however, to be observed, that amputation under these circumstances, when resorted to as a third operation, rarely succeeds.

16. When an artery is wounded with a simple fracture of a bone, or with a comminuted fracture of the smaller bones, with an external communicating opening, both ends of the artery should be secured, and the limb treated in the usual manner.

17. When the bone broken is the femur, and the artery divided is the femoral artery, the operation of amputation will generally be advisable. It will always be so if the fracture is a comminuted one, or the shaft of the bone is extensively split.

18. When the broken bone injures the artery and gives rise to an aneurism, the treatment is to be first of the fracture and then of the aneurism, as soon as circumstances render it advisable or necessary to have recourse to the operation for aneurism, and which can only be after time has been given for the collateral branches to enlarge, so as to maintain the life of the limb.

19. When mortification takes place in addition to, or as a consequence of, a wounded artery, amputation should be had recourse to forthwith.

20. The place of operation should be in almost all cases at the seat of the original wound; but there may be an exception, viz.—

21. When the injury has been a mere cut, just sufficient to divide the artery and vein immediately below Poupart's ligament, and mortification of the foot supervenes, amputation should be performed below the knee, or at the part where the mortification more usually stops for a time.

This rule is founded on the observation, that great efforts are made by nature to arrest mortification a little below the knee. Sometimes they succeed; when they fail, death is almost inevitable. The advice to amputate at this part is founded on the fact of its being infinitely less dangerous, when done there, than on the thigh, independently of saving the joint.

22. When mortification has continued for several days, and is spreading, without having once stopped, the constitution of the patient being indicated as marked by fever, amputation should not be performed until the mortification has been arrested and the line of separation has been well formed. In many cases, where there is great weakness or irritability of constitution, it will be advisable to defer the operation to a later period, particularly if there be hope of the patient's becoming stronger and more tranquil.

23. If the mortification has once stopped and then begins again to spread, it will never again cease to extend, and amputation may give some chance of life.

24. Amputation of the arm should never be had recourse to, in consequence of a wound of the axillary artery, unless mortification takes place.

25. When mortification takes place after operation for aneurism, the surgeon must be guided by the state of the patient's constitution, in resorting to or refraining from amputation.

26. When hemorrhage takes place from the surface of a stump, the artery should be tied at the part from which the blood comes in the first instance, if it can be easily done. If this should not suffice, the artery must be tied higher up, just at such distance as to afford a fair hope of its not having been affected by the derangement of the stump, which has led to the failure of consolidation in the extremity of the artery, and yet not too high to admit of the junction of any large collateral branches. If the bleeding proceeds from several small vessels, and cannot be arrested, the principal trunk should be tied above the diseased part, and the patient removed to a purer atmosphere, without which the operation rarely succeeds in any case.

27. When an aneurismal tumor mortifies, it is unnecessary and improper to tie the artery above the tumor, because it will be obliterated if the mortification be arrested by the efforts of nature, which the operation may interfere with, and even prevent, whilst, if the mortification spreads, it will be a matter of supererogation, and only hasten the patient's dissolution. When an aneurism inflames, is opened by ulceration, and bleeds profusely, it is a proper case for amputation, if such an operation can be performed.

Part xiv., p. 160.

Hunterian Method of tying Arteries.—Mr. Wilkinson King shows that the Hunterian method of tying vessels was not really by cutting ligatures, as are now generally used, and that the operations were not the less successful.

Mr. Hunter observed, "that in dogs, the mere exposure of the tibial artery to the air for about an hour, excited such a degree of inflammation and thickening of its coats, as completely to obstruct its canal."

We see inflammations, granulations, and contractions, closing up wounded arteries of limited size, and shutting up the vessels in venical cavities. A certain hypernutrient action, or a subsequent contraction, may, in spite

of aortic distention, close up the orifice of the coronary artery, the carotid or intercostals, and narrow the aorta itself as well as its main branches. It has a similar effect when the tissues of organs become condensed almost to the exclusion of blood, and it is a momentous reflection that very little more than granulations about an artery may contract to the blocking up of the channel.

Part xiv., p. 182.

Ligature of Arteries, without dividing the Middle and Internal Coats.—Chelius considers it unnecessary to draw the ligatures so tight as is commonly recommended, but only so much so, that the whole of the internal coat be brought in close contact, and that the ligature should indent the external coat of the vessel.

Part xiv., p. 167.

Torsion of Arteries.—Torsion, by producing obliteration of the vessel, either by coagulation and simultaneous assimilation of all the three coats at the spot, or by the slow and insensible contraction, as by ligature, converts the arterial tube into an impervious cord. It is adapted to small arteries of the fourth or fifth order, radial, ulnar, tibial, intercostal, cervical, thoracic, external pudic, spermatic, digitals. Seize them with forceps, close the instrument, and twist in the fingers, three, four, or six times in the same direction, and then abandon them, or return to the operation if not sufficiently twisted. Care must be taken to seize the whole calibre of the vessel; to take sufficient hold; not to include the surrounding texture; and so to twist them that the proper coats are ruptured, but not so much that the cellular coat is also broken. Its advantages are simplicity and celerity, no assistance being necessary, and its not leaving foreign bodies in the wound.

Part xiv., p. 177.

Wounds of Arteries—Ergotine suggested as a Styptic.—*Vide Art. "Wounds."*

Ligature of the Subclavian Artery for Axillary Aneurism.—Professor Syme thus describes his method of tying the subclavian:

In performing the operation I made an incision along the clavicle, so as to extend over the edges of the sterno-mastoid and trapezius muscles, and another from the centre of this upward, parallel with the edge of the latter muscle. The dissection was conducted entirely by the knife and forceps. The needle was passed under the artery, with its convexity upward, and the ligature was tied by the unaided effort of the fingers. It has been advised to pass the needle with its convexity downward, or toward the clavicle, with a view to protect the vein from injury. But this vessel is not at all in the way, while the cervical nerves are so situated in regard to the artery, as in general to render it nearly, if not quite, impossible to convey the ligature from below upward. It has also been advised to employ the assistance of some mechanical contrivance for tightening the knot. But I feel persuaded that the thread will always be within reach of the fingers, and may be more safely tied by them simply, than with the intervention of any instrument.

Part xvi., p. 182.

Opening the Temporal Artery.—The best mode of performing the operation is to make an incision into the skin, so as carefully to expose the artery, which must then be raised from the aponeurosis of the temporal muscle by a probe passed beneath the vessel, which is then punctured by a lancet, as in venesection. When the necessary quantity of blood has

been withdrawn, the artery is to be completely divided by a probe-pointed bistoury, and the truncated extremity compressed by a dorsal of lint, so as to prevent the recurrence of the bleeding. If the artery be not divided, but a compress merely applied over the puncture, an aneurismal tumor is almost certain to form, rendering a surgical operation necessary for a cure. The treatment consists in applying pressure on the temporal artery, both on the proximal and distal side of the aneurismal sac, which is to be laid open, so that the whole of the conglutium can be turned out, after which each end of the artery is to be secured by ligature.

Part xviii., p. 141.

Treatment of Wounded Arteries.—When bleeding cannot be restrained by moderate compression on the trunk of the vessel, and perhaps on the injured part, apply a ligature to both ends of the divided artery, or, if the artery is not completely divided, one above and one below the wound. (The search for the lower end of the divided artery will be facilitated by remembering that the blood flows from it in a continued stream, and is, at the lower extremity, of a dark color.) If the lower end of the vessel cannot be found, try compression upon the track of the artery below the wound; but if this fails to arrest the bleeding, expose the vessel and tie it as near to the wound as practicable.

Part xix., p. 135.

Secondary Hemorrhage Treated by Ligature at a Distance from the Seat of Injury.—In cases of secondary hemorrhage, where the parts are covered by granulations which conceal the bleeding point, and break down under the forceps—where there is an inflamed and sloughy condition of the parts, and the patient is so enfeebled by previous hemorrhage that further loss of blood would be fatal—and where uncontrollable arterial hemorrhage occurs in a case of compound fracture which is, in other respects, likely to do well, pass a ligature round the main artery where it is in a healthy state.

Part xix., p. 137.

Ligature of the Subclavian.—In performing the operation of tying the subclavian artery internal to the scaleni muscles, after exposing the vessel and encircling it with the ligature in the usual way, carefully saw through the clavicle, at its middle, taking care to guard the subjacent parts with a spatula. The intention of this is to allow of the approximation of the shoulder to the trunk, that there may be no tension upon the artery.

Part xix., p. 141.

Arteries—Wounds of.—Many arteries should be tied at once when wounded, but this does not apply to all. When the brachial artery is wounded in venesection, squeeze the edges of the wound accurately together, and place over it a sixpence or similar firm body, rolled up in a piece of soft rag; then apply something to press upon the radial, ulnar, and humeral arteries, a little below and a little above the wound, and apply a bandage. Bandage the arm to a splint, and keep the patient perfectly quiet. By this means the wound of the artery will sometimes heal; at any rate the wound in the integuments will, and then, if aneurism form, can be treated subsequently.

Part xx., p. 115.

Deep Punctured Wounds of the Palm.—In deep punctured wounds of the palm, where it is wished to stop the bleeding by compression, apply a bandage round each finger separately, and then continue it round the

hand, placing a compress immediately over the wound. Continue the bandage up the forearm, having placed small compresses of cork over the radial and ulnar arteries, and make sufficient pressure to diminish, without wholly stopping, the supply of blood. Lastly, carry the bandage with a moderate degree of tightness up to the shoulder, keep the patient recumbent, and apply cold to the arm. *Part xx., p. 120.*

Employment of Forced Flexion for arresting Hemorrhage in Wounds of the Palmar Arch.—Mr. Durwell, in a case of wound of the palmar arch from the fragments of a broken bottle piercing the palm, found himself, on arriving at the cottage of the patient, with no means of securing the artery; and—

While controlling the hemorrhage by pressure on the brachial artery, the following sentence in M. Malgaigne's "Anatomie Chirurgicale" occurred to his mind: "The only points at which obliteration of an artery can be obtained by position alone, without the aid of external compression, are at the bend of the arm and knee—a fact which is of great importance in reference to the arrest of hemorrhage." Acting upon this statement, Mr. Durwell immediately bent the arm on the forearm at an acute angle; the hemorrhage was instantly arrested. Advantage was taken of the circumstance to effect a definite cure. The arm was retained in its flexed position by bandages, so that the pulsation of the radial artery was completely intercepted. The wound of the hand was treated as an ordinary wound, and for the sake of precaution, compresses were laid over the course of the arteries of the forearm. The cure progressed favorably. On the third day, as the patient complained of the posture, the arm was slightly extended, and it was noticed that a small portion of florid thin blood oozed from the wound. The arm was restored to its flexed position, and in a short time the vessels and the external wound had perfectly healed. *Part xxii., p. 212.*

Method of making the Incision for the Exposure of Arteries.—Mr. Skey almost invariably adopts an oblique incision, generally at an angle with the artery of 45°. His reasons for doing so are: that in fat subjects it is difficult to ascertain the exact line of the vessel, and that, however true the first incision may be, it does not follow, in the course of a slow and bloody operation, that the same line will be preserved; that if, from accidental circumstances, the precise position of the artery be lost, the operator is equally uncertain whether he is dissecting on the inner or on the outer side of the vessel, or upon it; that, by dividing across the direction of the vessel, he acquires a confidence, from the conviction that the artery is really under his knife; and, lastly, that he makes an external wound, within which the ligature needle is more readily carried round the artery in a fat subject, in which the vessel lies deep, than in a wound parallel to it. His objection to a directly transverse wound is, that the artery is exposed only in a transverse line, by which nothing is gained, but much may be lost. In the femoral, brachial, radial, ulnar and posterior tibial, indeed, he considers the oblique incision to be an important element of success in finding the artery with facility. *Part xxiii., p. 150.*

Treatment of Wounds of the Palmar Arch.—From the writings of Sir Astley Cooper, we find that in cases of this kind he recommends steady and continued pressure on the brachial artery. If this fails, he says it may

be necessary either to secure the radial or ulnar artery, or both. Mr. Liston recommends us to enlarge the wound, and tie the vessels divided above and below. If inflammation and sloughing come on, then the humerus must be tied; because if both the radial and ulnar are secured, bleeding will still continue from the interosseous communication. Mr. Skey's opinion is, that the trunks of the radial and ulnar should be tied above the wrist. This was the opinion of Mr. Abernethy also. Mr. Butcher gave a case of a strong athletic man who was admitted into the hospital bleeding profusely from the right hand. The wound was inflicted by a pocket-knife, which had been thrust deep into the palm—three-quarters of an inch internal to the cleft between the thumb and index finger. Mr. Butcher advises, when an artery is divided in the palm, to apply pressure as follows: Let each finger and the thumb be separately bandaged to the metacarpal bone, then, the finger of an assistant being still kept upon the divided vessel, apply compresses to the remaining space in the palm, reserving the one over the bleeding vessel for special pressure. Press a small dossil of lint into the wound; over this a compress; over this another, and so on, until these are elevated over the surrounding integuments. Then let a roller be applied over the compresses, and carried as far as the elbow, placing a small compress over the radial and ulnar arteries to moderate, but not interrupt, the flow of blood. It is important that the palmar aponeurosis should be flexed so as to allow the pledget of lint to come in contact with the divided artery. The treatment by pressure to be successful should be applied early, and the bandaging be evenly employed over the entire limb; at the same time the arm must be kept constantly elevated.

Part xxxi., p. 167.

Wounds of Blood-vessels of the Lower Extremities.—When arteries under the calf of the leg are wounded it is difficult to follow the well-founded and generally-received rule of exposing and securing the injured vessels, even under the most favorable circumstances; that is, if we see the case at an early period, when no considerable swelling has occurred, and the natural relations of the surrounding parts are not obscured by ecchymosis. Frequently we do not know what vessel is wounded, nor the precise locality of the mischief. Sooner or later, and often very quickly, the whole limb becomes swollen by extravasation of blood, while all the soft structures may be lacerated, contused and infiltrated with blood. Exploratory incisions for discovering the injured vessel, would be undertaken with very little chance of success; in such a state of limb, they might be attended with dangerous loss of blood, and would certainly involve the necessity of extensive and deep incisions in the injured parts. Thus we come to the conclusion, that amputation is necessary in some of these cases, in order to prevent worse consequences.

Part xxviii., p. 168.

Palmar Arch—Wounds of the.—In primary hemorrhage, ligature is generally effectual, but if moderate exploration fail to discover the bleeding vessel, it may be completely controlled by properly-adjusted pressure. If secondary hemorrhage occur, exploration ought not to be attempted, judicious and properly-applied pressure will be found quite effectual; and under no circumstances whatever is deligation of the arterial trunks on the cardiac aspect to be deemed necessary or attempted. Apply the tourniquet to the brachial artery, strap up the wound with plaster, and place upon it a firm compress of lint, bandaging the hand and forearm

moderately tight; also keep the tourniquet sufficiently pressing upon the brachial artery to moderately check the impetus of the circulation through the limb. *Vide Art. "Hand."* *Part xxxii., p. 140.*

ASPHYXIA.

On Asphyxia, and on the Resuscitation of Still-born Children.—The experiments of Dr. Edwards of Paris, respecting asphyxia, are already known to many members, though not probably all of the profession, and have proved that asphyxia takes place much sooner in a warm than in a cool medium. He has found that new-born mammiferous animals die most slowly in water at about 60°, which is ordinarily cold water; and that they die more rapidly as the water approaches blood heat. He advises that persons in a state of asphyxia should be exposed to the cool air, and that the application of heat should be avoided. Mr. Snow very ingeniously explains this circumstance by supposing that the deleterious effects of heat in suspended respiration depended on "its stimulating the capillary circulation, and thus promoting the deoxygenation of the blood" in a more rapid manner than would be the case when the surface was cool; in other words, when the surface is cool the capillary circulation is less energetic than usual, and consequently there is a preservation in some degree of the oxygen of the system. When we consider the great number of still-born children, some writers affirming that one child in twenty is so, it is of the greatest consequence that a safe mode of practice be adopted in these cases, and we are strongly disposed to think that hitherto, the practice of applying heat, and especially in the form of hot baths, is pernicious; for we must remember that the hot bath has not only the bad effects of heating the surface, but prevents that surface from being acted upon by the oxygen of the atmosphere, which it will be more or less when exposed freely to its influence.

Dr. Marshall Hall does not agree in this practice. Although he approves of the *sudden* application of cold to the warm surface as an effectual means of exciting respiration, he does not recommend the continued application of it. On the contrary, he says "That it is not the mere application of cold, but the *sudden* application of cold to a warm surface, which is the effectual means of exciting respiration. It is the *sudden alternation*. To apply cold to a cold surface would only be to sink the general powers of life. The infant should be kept warm; the warm bath may be required; and then cold water must be applied, in moderate quantity, but with *force*." He recommends what must strike every one as being a truly practical method of accomplishing resuscitation, namely by exciting respiration by stimulating the excitors of that function, the *trifacial*, the *pneumogastric*, and the *spinal* nerves—the trifacial by *forcibly* blowing or dashing cold water in the face, stimulating the nostrils by ammonia, snuff, pepper, or the point of a needle, etc.; the spinal nerves, by *forcibly* dashing cold water on the chest, thighs, tickling the sides, soles of the feet, and verge of the anus. M. Baudeloque states that since he has followed the opinions of Smellie, Secret, Chaussier, etc., with respect to tying the navel string, he has not lost a single case from

asphyxia. This opinion is to delay tying it for some time, when asphyxia is present; as the blood circulates for some time in the umbilical cord when it has ceased to be perceived in the arteries. *Part iv., pp. 47, 48.*

Acupuncture of the Heart suggested in Asphyxia.—This experiment was performed on a cat. It was kept under water till apparently dead, and after remaining in this state three quarters of an hour, without the least signs of reanimation, a needle was pushed through the heart; five minutes it was observed to move, which showed the heart had recommenced its action; it rapidly recovered. Dr. Carraro recommends it as a safe operation, and trusts that it may be tried in cases of asphyxia. But we should certainly hesitate before we adopt such an experiment on the human subject. *Part iv., p. 48.*

Further Observations on Asphyxia—Treatment after Drowning by Artificial Respiration and Moderate Cold.—We cannot but agree with Dr. Edwards and Mr. Snow in their views respecting the best mode of resuscitating drowned persons, and children that have been still-born. Dr. Edwards has certainly shown, that asphyxia takes place more rapidly at blood-heat than at inferior temperatures; and he has, moreover, shown "that the quantity of oxygen consumed, and the necessity for respiration, keep a direct ratio with the development of natural heat; and, likewise, that the application of heat to the body increases its power of developing caloric, whilst the abstraction of heat by any cold medium had a contrary effect." By putting a patient into a warm bath during a state of asphyxia, therefore, we cause the system to require more oxygen, and must, therefore, increase the asphyxia and hasten death, unless respiration is, by the stimulus, reestablished. This seems to be very much confirmed by the want of success in the Royal Humane Society, where warmth is generally employed; whereas, some time ago, when less energetic measures were taken to restore the warmth of the surface, persons were frequently restored who had been submerged ten minutes, and in one case even twenty minutes. And, in the report of a society at Amsterdam, persons are said to have been restored who had been a quarter of an hour, half an hour, and one a whole hour, under water; this is reported by a scientific society; and when we remember that when a person has been only five minutes under water, and may be often ten or fifteen minutes without breathing, we may easily suppose it possible for him to be this length of time under water and still be restored. To promote respiration, therefore, ought to be the great object in resuscitating drowned persons or still-born children, and this ought to be done immediately, by performing artificial respiration; and, at the same time, the surface of the body should be kept cool till respiration is reestablished, in order that as little as possible of the oxygen that remains in the system may be consumed. *Part v., p. 48.*

Treated by Galvano-puncture.—While on the subject of asphyxia, we may refer to the experiments of M. Leroy d'Etoiles, who has suggested galvano-puncture in a manner which at first sight appears formidable. "He introduces an acupuncture needle on each side, between the eighth and ninth ribs, until it reaches the fibres of the diaphragm. He then establishes a galvanic current between the needles, by means of a pile of 25 to 30 pairs of plates, an inch in diameter. In his experiments the

diaphragm was instantly made to contract, and an inspiration was taken, then by interrupting the circle and gently pressing on the abdomen, the diaphragm again ascended, and an expiration was accomplished. Leroy was thus successful in restoring animals which had been under water above five minutes; but, upon the whole, the experiments were more interesting than really practical, and could only be brought forward in aid of the more usual means of inducing artificial respiration. *Part v., p. 63.*

Treated by Tracheotomy.—A very extraordinary case of resuscitation is related by M. Trousseau, where the patient had breathed his last a few moments before the operation of tracheotomy was commenced. The heart commenced beating in about a quarter of an hour, and in 57 minutes a deep inspiration was taken. This operation would, no doubt, be advisable as a last resource in many cases of drowning, as well as in those cases of asphyxia caused by actual disease. When the practitioner is called in haste to such a case, he may adopt the practice of M. Maschietrat, of drawing aside each lip of the division of the cricoid cartilage with a bent pin, to which a string may be attached, and tied behind the neck so as to keep the wound open. The cricoid cartilage and three rings of the trachea may be divided with a probe-pointed bistoury, introduced through a wound previously made in the thyroid membrane; or, the trachea having been laid bare, "it may be punctured at the inferior angle of the wound with a sharp-pointed bistoury, and the rings and cricoid cartilage may be immediately divided by directing the same instrument upward. *Part v., p. 137.*

The Effects of Caloric.—The instantaneous application of a burning match along the spine, suggested in cases of asphyxia while waiting for other remedies. *Part vi., p. 86.*

Electro-Magnetism.—Considered useful in cases of asphyxia, especially where death seems to be caused by an *obstruction* of the functions, or organic movements which support life, more than by an *exhaustion* of the organic functions, or of life itself.

In such cases, electro-magnetism might communicate an impulse which would renew the sympathetic actions between the organs (if no positive lesion exist in any of them), upon which the continuance of life depends. *Part vii., p. 34.*

Congenital Asphyxia. The sudden alternation of the cold *douche* with warmth, recommended as valuable auxiliaries to other measures, in cases of congenital asphyxia, poisoning by prussic acid, etc. *Part viii., p. 45.*

Asphyxia from Hanging.—The cause of asphyxia in such cases, is stated to be a combination of suffocation and apoplexy.

So much pressure is made by the cord round the neck as to prevent inspiration, so that immediately the lungs, right side of the heart, and veins, become congested; part of the venous blood sent to the lungs through the pulmonary artery is oxygenated during the first inspiration, but when the next systole of the heart takes place, it is venous, and when thrown out of the left ventricle, it acts as a poison to the brain, and prevents the respiratory nerves from exciting the muscles of respiration; at the same time the ligature round the neck prevents the venous blood returning from the brain, and thus produces apoplexy.

The great object in such cases is to *bleed* the patient as soon as possible from a *vein* so as to relieve the brain of some of its poisoned venous blood, and to relieve congestion of the lungs.

By opening a vein at the bend of the arm, and immersing the arm in hot water, together with hot water fomentations and brisk frictions to the surface of the body and extremities, the stagnant circulation may be roused and the congestions relieved. *If you cannot get blood from the vein, open an artery.*

Cold applications should be kept to the head, especially during the continuance of the hot fomentations and friction to the other parts of the body. Suggested, also, to stimulate the mucous membrane of the bowels by croton oil.

Care is requisite to regulate and restrain the violence of the reaction, when established—which, in the cases here cited—resulted in phrenitis.

Part ix., p. 27.

Congenital Asphyxia.—In the treatment of asphyxia in new born infants we ought accurately to discriminate between that produced by actual congestion in the vessels of the brain and that produced by the violent shocks and actions of the womb, the first causing the symptoms of compression, and the latter concussion of the brain. When a child is born with its face of a purple or blue color, its features bloated, and slow or totally impeded respiration, we suspect the cause to be congestion, and by allowing a little blood to escape from the cord, the symptoms are often relieved in a remarkably short time; on the other hand, when the child is born pallid and relaxed, with a very feeble circulation, we must be careful not to take away blood till the circulation has been stimulated to increased activity by the alternate use of the warm bath, and the cold douche, quickly followed by friction with warm flannels; also, ammonia applied to the nostrils, galvanic shocks passed through the cardiac region, etc., and as Joerg has pointed out, that in a rapid delivery the lungs will sometimes not have time to be prepared for their new function, we ought in such cases never to tie the cord, so long as pulsation exists in it, till respiration be established. He conceives that in such cases, in consequence of the inferior degree of compression to which the placenta is subjected, a sufficient tendency is not given to the foramen ovale to close, nor is a necessity for respiration felt by the system. After birth, then, a portion of the lungs alone becomes filled with air, while the remainder continues in a fatal state, a condition to which he has given the name of atelectasis, and which may, amongst other ill consequences, give rise to apoplexy, depending on the want of duly oxygenated blood.

Part ix., p. 35.

Inflammation and Gangrene of the Lungs produced by Partial Asphyxia.—A case is related by Dr. Heaton, which shows very remarkably the power of partial asphyxia, by whatever cause produced, in causing that state of congestion of the lung which must frequently end in inflammation. The partial asphyxia in this case was produced by a woman taking a large dose of laudanum. The immediate effects of the poison were counteracted, but in a few days pneumonia appeared in the right lung, which ultimately ended fatally.

Part ix., p. 50.

Asphyxia from Various Causes.—*Asphyxia by Varium, Strangulation, and Occlusion.*—The first and the most pressing demand is to remove

the obstacle which opposes itself to the introduction of the air; to cut the cord which strangles, or withdraw the foreign body or parasite which blocks up the trachea. An emetic, in these cases, is often successful. This result obtained, we must hasten to rub the body of the patient, the neck, between the shoulders, on the chest and abdomen with an aromatic ointment (camphor ointment, for instance), and place a compress of sedative water over the region of the heart, on the cranium and around the neck. Our sedative water, which has ammonia for its base, has the property of penetrating speedily into the circulatory current, and there dissolving the coagulated albumen; in fact, of impregnating the blood with ammonia and sea-salt, which are two of its most powerful vehicles. We may, also, gently inflate the lungs with hot air, containing the vapor of myrrh, camphor, etc., to reëstablish the respiratory movements, and obviate all tendency to decomposition. Directly the patient gives a sign of life, make him swallow hot broths and strongly spiced liquida.

Asphyxia by Submersion.—Dry the body; then bathe it with the strongest camphorated spirits. The alcohol, which passes by imbibition through the living tissues, removes from the blood the aqueous quality which it acquires from too long a stay in the water; now, the circulation is arrested as much by excess as by deficiency of its menstruum. Also, inflate the lungs with air impregnated with camphorated spirits, etc.

Asphyxia by the Vapor of Charcoal and by Acid Emanations.—Abundant lotions of the sedative water, so as to re-dissolve, by the vehicle of the ammonia, the congestions caused by the chemical action of the acid vapor. Constant frictions along the course of the spinal marrow, and the abdominal region, with camphorated liniment; insufflation of air rendered slightly alkaline with ammonia.

Asphyxia by Ammoniacal Gas, Sulphureted Hydrogen and other Basic Gases.—General frictions with camphorated or aromatic vinegar; application of camphorated spirits, to absorb the aqueous portion of the blood and diminish its liquidity; acid lotions to neutralize the exaggerated effects of the alkaline vehicle, and to decompose the poisonous gases by precipitating their bases.

Acid Exhalations and Emanations—Marsh Miasmata.—In the new process of gilding by dipping, and in the manufacture of vitriol and other acids, the workman is constantly surrounded by an atmosphere of nitric or hydrochloric acid, which he respires through all his surfaces. The trades in which mercury is employed are perhaps less injurious than this. Mercury attacks the nerves; acids corrode the parietes of the intestinal canal and of the chest. The men should here take care to work only under low and glazed chimneys, and to be surrounded by free currents of air. They should also frequently bathe their hands with ammoniacal water, and wear a cravat impregnated with it around the neck, so that the mouth and nose may be constantly enveloped with a vapor capable of saturating the acid emanations, and neutralizing their effects. A mask might also be worn, in such cases, containing similar antidotes. Those who labor in sewers, and on marshy grounds, should adopt similar precautions, or employ *cigarettes* containing particles of chloride of lime. The smoking of tobacco, otherwise very *hygienic*, can here serve only as a vehicle and auxiliary to the corrosive action of the acids and the miasmata. Fires on the borders of marshy grounds purify the air, not only by decomposing the chemical principles of the miasm by the flame, but also by converting

them into a saponaceous compound by the essential oil, and neutralizing them by the pyroligneous acid which is disengaged.

Part x., p. 188

Treatment of Asphyxia.—In giving the outlines of the treatment of asphyxia, as described in Mr. Erichsen's paper, it will not be necessary to do more than refer to those points which may be called for in practice. It may be useful to remember that asphyxia may be caused or attended by two circumstances: 1st, When the impression is first made on the nervous system causing *syncope* rather than real asphyxia. In this case, the heart will continue to pulsate feebly for some time, sending the blood through the lungs slowly to consume the remains of the oxygen which there exists, this state finally terminating in real asphyxia, the blood being no longer able to stimulate the heart to action. This accounts for those cases of recovery after a submersion of four minutes and *upward*. The face is pale and bloodless, the features sunk and contracted, and the eyes partially or entirely closed. 2d, When the impression is first made on the respiratory and circulating systems, the brain and medulla oblongata being only secondarily affected. In this case the blood rapidly becomes venous, and the heart seldom continues to pulsate above four or five minutes: the face is livid and bloated, the lips swollen and the eyes open. But in actual practice it is often impossible to draw these distinctions, both kinds running into each other. It is obvious that when a distinction of causes is evident, "in the one case we should endeavor to re-oxygenize the blood; in the other, to rouse the sensibility of the brain and medulla oblongata."

Mr. Erichsen first recommends that a certain degree of warmth (from 85 to 90 degrees) be applied, but not the high temperature of 98 or 100 degrees, which is too often used. This advice is agreeable to the experiments of Edwards, who has proved that the higher the temperature of the body, whether natural or artificial, the more oxygen is consumed—and therefore in a case of asphyxia, a low or moderate temperature will certainly be safer than a high one. Moreover the hot bath is not so favorite a mode of applying heat as it used to be. Both Dr. Kay and Dr. Carpenter disapprove of it, considering that as the skin is a valuable medium of conveying oxygen to the blood, the bath renders this adjunct comparatively useless. The hot-air bath is, therefore, a better mode of accomplishing the purpose; and with this, friction in various ways may be better applied than when the hot bath is used. There are two facts which seem to be so far established, viz., that artificial respiration cannot cause reaction of the ventricles of the heart when they have entirely ceased, but that by means of this operation the circulation through the lungs themselves can be reëstablished to some extent after it has entirely ceased, and after they have become congested with asphyxial blood. By means of artificial respiration, however, Mr. Erichsen has several times observed the auricles to contract regularly and forcibly. This process ought therefore never to be neglected, as it can do no harm even if the action of the ventricles has ceased, and, by supplying the left side of the heart with a fresh quantity of oxygenated blood, it is one of the most likely means of exciting it to increased action. Now the experiments of Mr. Erichsen clearly prove that even when the lungs are loaded with asphyxial blood, artificial respiration is able, in some measure, to decarbonize it, and to excite the pul-

monary circulation to some degree of activity, even when that circulation has ceased. Perhaps the best mode of causing artificial respiration is by compressing the chest and abdomen and allowing them again to expand—a certain quantity of air is sucked in; and by the well-known law of the diffusion of gases, if fresh air be only taken into the larger bronchi, it becomes rapidly diffused. In several experiments it was found that even when the contractions of the heart had entirely ceased, they could be reëxcited by making use of oxygen gas in the inflation of the lungs—an important fact to be known. It seems evident that if we had a large and ready command of this gas, many lives might be saved. Dr. George Wilson, lecturer on chemistry, Edinburgh, points out a method by which this may be accomplished. It consists in a modification of the well-known process of preparing oxygen from chlorate of potass. It consists in mixing the chlorate with a tenth of its weight of the black oxide of manganese, the black oxide of copper, or of certain other oxides, and applying heat as is done in the ordinary process with the unmixed chlorate. Dr. Wilson states "that with a small glass retort heated by a single spirit lamp, containing the chlorate of potass mixed with a tenth of its weight of oxide of manganese, it is easy to obtain 200 cubic inches of oxygen within four minutes of the first application of the flame. The gas begins to come off in a few seconds after the light is applied, and literally gushes in a full stream till the whole is evolved. This subject has been discussed in the recent part of "Taylor's Scientific Memoirs." It has been estimated that 100 cubic inches of air may be thrown into the lungs each time, so that if 300 or 400 cubic inches of oxygen could be supplied each minute, the process could be kept up artificially for a considerable time. But we suspect that a much less quantity would be very useful and even sufficient. Owing to the diffusibility of gases, it would be sufficient to force a quantity of oxygen into the larger tubes of the lungs: this would soon be diffused through the remotest air cells, and in a much more rapid manner than is generally supposed. The mixture of chlorate of potass and metallic oxide, should be kept ready for use at all public hospitals, lying-in institutions, police offices, and wherever cases of asphyxia may be readily conveyed. "There should also be provided glass or metallic retorts, with suitable arrangements for heating them, and one or more gas holders to receive the gas." It would be advisable "to pass the gas through an intermediate vessel containing a little caustic potass in solution, both to detain any carbonic acid resulting from the presence of combustible matter in the original mixture, and to arrest any of the latter carried over mechanically in the current of the oxygen." A complete apparatus for this purpose would be especially useful in lying-in hospitals. It might also be useful in cases of poisoning by opium.

"The best form of gas holder, I believe, would be that adopted at the gas-works, viz., a cylinder or drum of sheet metal, closed at one extremity, suspended with the mouth downward in a cylinder like itself inverted, filled with water. The drum being hung with chains passing over pulleys and terminating in counterpoising weights, is filled with water by sinking it in the lower cylinder or well, while the air is permitted to escape. When oxygen or any other gas is poured into the drum, the latter rises out of the well to a height proportionate to the quantity sent into it. The convenience of this form of arrangement is, that gas can be drawn off by a properly arranged tube from the upper part of the drum, while it con-

times to be thrown in from below. To the exit or delivering tube a flexible pipe of convenient length and dimensions should be attached at one of its extremities, and at the other made to screw or otherwise fit into the aperture provided for the entrance of air in the bellows to be used for inflation. A valve in the pipe of the bellows opening outward, would provide a complete security against any return of the oxygen when the handles of the instrument were separated, so as to produce a vacuum within it; but it would not be absolutely necessary. With gas holder of the construction recommended, kept full of water, and the rest of the apparatus and the mixture ready for immediate use, inflation with oxygen might be commenced within a few minutes after a case was brought in, and might be carried on for any length of time." *Part xi., p. 41.*

Asphyxia by Strangulation—Immediate Treatment—Sir B. Brodie resolves the treatment into the following simple indications, observing that there are necessarily but few cases in which the surgeon has an opportunity of hopeful interference. 1. If the ligature is removed before the efforts of the diaphragm have ceased, "all that you have to do is to watch the patient carefully; if natural respiration continue, leave him to himself; if it cease, supply the want by inflating the lungs artificially." 2. If the efforts of the diaphragm have already ceased, have recourse to artificial respiration without delay. There is no time to lose. In two or three minutes, after the last heave of the chest, the heart's action will have ceased, and then all hope is over. 3. In successful cases, so soon as normal respiration is established, inflation is desisted from. But treatment is not to cease. The patient is not safe. Dark blood has been circulating in the brain; and symptoms like those of poisoning by a narcotic may exist. Coma may remain. By and by the respiration may cease. Then has arrived a second period at which artificial respiration may be necessary to preserve life. And, in truth, the practitioner may expect to be called upon to inflate the lungs more frequently at this second period than at the first.

As to the mode of inflating the lungs, it is obvious that in the hurry and excitement of the emergency, we are not to trust to syringes, bellows, tubes, elastic gum bottles, or other contrivances which may be constructed very ingeniously and suitably for this express purpose. They are not to be had. And the surgeon is lucky if he can secure a common bellows. And if that cannot be had, look for a tube of any kind which may be inserted into the nostril—a large elastic catheter is very suitable; if this cannot be got, roll up a piece of card into a cylinder, and with this and one's own lungs a tolerably efficient substitute for bellows may be put in play. Then the following practical points require attention: 1. Avoid undue forcing of air into the lungs; otherwise the air-cells may be burst; air may enter the blood-vessels, and the result is certainly fatal. 2. Inflate at proper intervals, imitating as clearly as possible the rhythm of natural respiration. 3. There is no necessity for warming or oxygenating the air; the attempt is just time lost. And it is fortunate that such manoeuvres are not essential, seeing that the surgeon is not likely to be provided with either a pocket-stove or a portable gasometer. 4. The upper part of the body is exposed, so that the movements of the chest may be accurately noted. 5. The inflating tube is introduced into one nostril. There is no necessity for opening the trachea; that is only required when previous

disease has obstructed the larynx. 6. The other nostril and mouth should not be closed. They are safety-valves, by which over-distention of the lungs is prevented. 7. An assistant presses the box of the larynx against the vertebra, so as to prevent inflation of the stomach. Were this cavity filled, the descent of the diaphragm would be prevented, and no air could enter the lungs. 8. Electricity and galvanism are inferior to the bellows, for they waste time in application. And the following assertion—repeating more broadly the opinion already stated—hurries him who believes it, to the best employment of the very few moments he has to spare.

If that action of the heart by which the circulation is maintained should cease, as a consequence of the suspension of respiration, it can never be restored. This I positively assert, after having made it the subject of a very careful investigation. If others have held a different opinion, it is because they have confounded those feeble and irregular contractions of the heart, which may last for a long time, but which mean nothing, with those regular and powerful movements which are necessary to propel the blood through the system.

After-treatment.—In the after-treatment—natural respiration having been restored—it may be necessary to abstract blood, on account of congestion; but this must be done with extreme caution, seeing that the powers of life have been brought low by the faulty circulation in the brain. The warm bath is not essential. But the patient should be kept in an atmosphere of a moderately warm temperature, “to compensate for the insufficient generation of animal heat, which is the consequence of the impaired state of the functions of the brain, whether arising from the influence of a narcotic poison, or from another cause.” *Part xiv., p. 77.*

Suspended Animation.—[An interesting case in which recovery took place after artificial respiration had been kept up for five hours and a half, is related.] *Part xxi., p. 359.*

Treatment of Asphyxia Infantum.—Dr. Tott states, that he has often succeeded in restoring life in the *asphyxia asthenica infantum* after the failure of the usual means, by causing a person to stand on a table, and pour cold water from a tea-kettle on the pit of the stomach. In this way, Professor Hasselberg saved many lives. *Part xxv., p. 109.*

Asphyria of Infants.—Galvanism is most useful in exciting respiration in this condition. *Part xxix., p. 206.*

Asphyxia.—The term asphyxia, which ought to be exchanged for *apnœa*, designates that condition of the animal system which results from the suspension of respiration.

Respiration involves two processes—the inhalation of oxygen, and the exhalation of carbonic acid.

The remedy for the suspension of respiration is, on every principle of common sense, the restoration of respiration. This view might be considered, irrespective of physiological inquiry and proof, as self-evident; but that proof is amply supplied by physiology.

Of the two functions suspended, it is certain, from physiological inquiry, that the retention of the carbonic acid is by far the more fatal, and that, in a word, asphyxia is the result of carbonic acid retained in the blood, which becomes, in its excess, a blood-poison.

If this view be correct, it is evident that restored respiration is to the

blood-poison in asphyxia what the stomach-pump is to poison in the stomach; and that it is *the* special remedy, the *sine qua non*, in asphyxia.

But this blood-poison is formed with a rapidity proportionate to the circulation, which is, in its turn, proportionate to the temperature. To elevate the temperature, or to accelerate the circulation, *without* having first secured the return of respiration, is therefore *not to save*, but in reality *to destroy life!*

The only remedy is artificial respiration; and the only method of effecting this properly is to place the patient on his belly, in the prone position, so that the tongue may fall forward, and not obstruct the passage through the glottis, which it would do in the supine position, by falling backward. Again, when the body is in the prone position, the thorax and abdomen will be compressed, and expiration will take place; let the body be now turned gently on the side, through rather more than the quarter of a circle; by this the pressure will be removed, and effectual inspiration take place.

Instead of the rules adopted by the Royal Humane Society, the following are proposed by Dr. Marshall Hall:

1. Send for medical aid, clothing, etc.
2. Treat the patient on the spot.
3. Place the patient gently on the face, to allow any fluids to flow from the mouth.
4. Raise the patient, and endeavor to excite respiration by snuff, harts-horn, tickling the fauces, etc.; if these fail, lose no time, but—
5. Replace the patient on his face, that the tongue may fall forward, and leave the windpipe free, then turn the body completely on the side and a little more; and then again on the face, alternately, to induce inspiration and expiration, sixteen times in the minute. Rub all the limbs and trunk, energetically, with the warm hands, upward, making firm pressure.
6. Omit the warm-bath, until respiration is reestablished.

Part xxxiii., p. 88.

Linear Canterization in Asphyxia.—M. Faure's proposal is founded upon numerous experiments on animals asphyxiated, in a variety of modes, and on one case of asphyxia by charcoal, occurring in a girl. The actual cautery, he observes, has long since been employed in distinguishing real from apparent death, and for the purpose of resuscitation; but it has not succeeded, owing to the absence of proper method and due perseverance. When properly used, however great the danger, as long as even the feeblest respiratory movements continue, it will establish a favorable reaction, and to this end is far superior to all other means. The following are the conclusions arrived at: 1. When the heart has entirely ceased to beat, or when the pulsations are fewer than three in five seconds, death is certain, whatever may be done; but, except in these very extreme cases, canterization may restore life. 2. Deep and long parallel lines must be traced by a strongly-heated iron, along the upper and lateral parts of the chest, opposite the four or five first ribs, this being the part of the body that longest retains the faculty of being stimulated. 3. The first effect is a muscular contraction, which is quite local and without a sign of pain: the ribs then move, the thorax enlarges, and inspiration becomes more ample. Sometimes more than a minute elapses before any sign of sensibility can be induced, even by the most intense burn. 4. When the general sensibility

has become aroused, it is of the highest importance to keep it excited for a long time; and to this end flagellation is the easiest and most certain means. It must be persisted in for a long time, and the patient must be well watched. 5. Frequently asphyxiated persons die after having been restored; but this must be referred rather to the shock sustained by the economy, in consequence of the suppression of respiration, than to the introduction of any poisonous principle, inasmuch as such death has occurred in persons who have not been exposed to any toxical influence, as in those

Part xxxiii., p. 91.

Suspended Animation.—A very convenient and useful instrument for inflating the lungs of newly-born infants, is a vulcanized india-rubber ball, about the size of an orange, to which is attached a German-silver tube, five inches long, slightly curved at the end, with two eyes like a female catheter. This must be introduced into the larynx, and by compressing the ball, the air will rush into the lungs: on removing pressure, it becomes instantly refilled with air, but to prevent its being the same which has been into the lungs, there must be a hole in the tube near to its connection with the ball, to admit fresh air. This opening must be guarded by the finger during compression.

Part xxxiv., p. 249.

Asphyxia of Still-born Infants.—Dr. Marshall Hall gives the following directions: 1. Place the infant in the prone position. 2. Sprinkle the surface briskly with cold water. 3. Make gentle pressure on the back; remove it, turn the infant on the side, and again place it prone with pressure. 4. Rub the limbs with gentle pressure upward. 5. Repeat the sprinkling with cold and hot water alternately. 6. Continue these measures, or renew them, from time to time, even for hours.

* * * * *

Dr. Ramabotham says: If the vessels of the funis are beating, do not divide it, but give the infant a few smart smacks on the back; if there be no pulsation, separate immediately, and immerse for two or three minutes in warm bath of 96° or 98°. It is dangerous to keep the infant in warm water for any length of time together; for it has been proved that animals will drown much more quickly in hot than in cold water. While in the bath, place a drop of spirit on the root of the tongue. If in three or four minutes these means do not succeed, artificial respiration must be resorted to. Wrap the child in warm flannel, put a bit of flannel over its mouth, and inflate the lungs by breathing into them, taking care that the nostrils are closed; then all hands must be removed, and gentle pressure made on the chest: this alternate action must be continued so long as there is the least tremulous pulsation of the heart.

Part xxxv., p. 43.

Danger of all Attempts at Artificial Respiration, except in the Prone Position.—According to Dr. Marshall Hall, artificial respiration can only be certainly, effectually, and safely performed in the prone position. In the supine position the larynx is apt to be obstructed by the falling back of the tongue and epiglottis. Fluids may be fatally inhaled into the wind-pipe from the stomach or mouth, when inspiration is mechanical. All other measures are subsidiary: all which exclude respiration are destructive, and warm bath is doubly fatal, first, by excluding rotation, and secondly, by promoting the circulation of carbonic acid.

Part xxxv., p. 47.

Asphyxia from Chloroform.—In a case where the usual means had failed to excite respiration, the prone position and rotation were afterwards tried with almost immediate success. When ammonia was inhaled and cold water now sprinkled on the face, inspiration was excited. It is very evident, that if the patient is to breathe, we must cause the fluids to flow out and the tongue to fall forward, and this can only be accomplished with the patient in the prone position.

Part xxxv., p. 51.

Jugular Venesection in Asphyxia.—In asphyxia the brain is poisoned by the circulation of venous blood within its structure, and artificial respiration, which is the great resuscitating means, must be performed till the brain is again arterialized. But restoration of the action of the heart does not quickly follow well-performed artificial respiration, because the pulmonary heart is paralyzed by a mechanical cause: it is distended and engorged with venous blood. Artificial respiration partly tends to relieve this, but it is generally possible to relieve it more quickly by *jugular venesection*; this should be performed *as early as possible*, and the vein should be opened about an inch above the clavicle. The great danger is the entrance of air into the veins: this is only likely to occur during respiration, and it cannot so long as the veins are distended and full; therefore, as soon as the *active* regurgitation ceases (which the valves permit) the wound must be carefully closed, and artificial respiration immediately commenced. The escape of even 1 oz. of blood would afford very material relief.

Part xxxv., p. 52.

Permeation of Gases.—Mr. Osborn gives the following: When a person has been exposed to the fumes of a charcoal fire, asphyxia may be produced either by carbonic acid or carbonic oxide. The former gas having a powerful affinity for ammonia, we may succeed in removing a portion of it from the lungs by means of that alkali; but if asphyxia be caused by carbonic oxide, ammonia would only act as a stimulant, but not as an antidote. In that case, Dr. Marshall Hall's valuable process for restoring suspended animation might, in all probability, be advantageously adopted.

Some years since, I had an opportunity of trying ammonia in a case of asphyxia caused by exposure to the fumes of ignited charcoal. A baker had been engaged for some hours in his bakehouse over a charcoal fire, and fell down suddenly in a state of insensibility. I was sent for, and hearing the nature of the case, procured a bottle of dilute solution of ammonia, free from carbonic acid, of course. On my arrival, I found a man about twenty-seven years of age stretched upon his back, quite insensible; countenance pale, and somewhat shrunk. I poured a little of the ammonia on his tongue, and applied it to his nostrils. In less than a minute, he jumped up like one suddenly roused from a sound sleep, walked a few yards up the passage, and then fell back with a dead weight in the same state as I found him. I applied the ammonia as before, and he rallied again, but went off the third time, and afterward recovered with no other treatment than the ammoniacal, and a little cold water which I gave him to drink.

In this case, no twitchings of the muscles were observable, and there was no irritation about the glottis exciting cough. When carbonic acid gas is disengaged from a lime-kiln, I believe no irritation of the glottis takes place, but a sense of oppression about the chest; and that arising from a charcoal fire causes constriction across the forehead, or a sensation of dryness about the throat—at least such are the early symptoms ob-

served. But whenever I have accidentally inhaled carbonic acid disengaged from chalk by means of an acid, irritation of the glottis and cough are instantly produced. It would appear, then, that carbonic acid gas acts as an irritant in the cold state, but when its temperature is raised, no irritation is produced, thus rendering it more insidious.

Part xxxv., p. 303.

ASTHMA.

Nature and Treatment of Asthma.—It seems now generally acknowledged, that the phenomena attending a fit of asthma are to be attributed to spasm—to a spasmodic action, especially of the different fibres which encircle the air-tubes, and which may be distinctly seen, when hypertrophied, encircling the larger bronchi, and which have been traced by Reissessen in tubes of a very small diameter. Laennec states that he has seen them in tubes less than one line across. Some anatomists doubt their muscularity; but we must attribute to them the action of muscles, and suppose that they are slender muscles like those which surround the intestines and urinary bladder; this view is corroborated, not only by the experiments to prove the contractility of the lungs and air-tubes, as mentioned by Dr. Watson, but also by the circumstance mentioned by Valentin, who found that the rings of the trachea could be made visibly and distinctly to contract, by irritating the par vagum. A fit of asthma, therefore, may be considered a spasmodic affection, during which it is very difficult to inflate the lungs; hence, the respiratory murmur is generally absent. An ingenious method of expanding the chest, in cases of spasm, is that recommended by Mr. G. Robinson, who orders the patient at the end of every inspiration, or just before he is about to empty his chest, to close his nostrils and mouth so as to prevent the act of expiration; the patient will be instantly compelled to inspire again, when the fingers are withdrawn from the mouth and nose, and thus the chest will be effectually expanded. But this practice is not yet sufficiently corroborated by the experience of other practitioners, to allow of full confidence being placed in it; it may, however, be tried with impunity. Narcotics, perhaps, are our best remedies; opium is generally used in one form or another, but some patients place the greatest reliance on stramonium, provided that it be taken at the very commencement of the attack; but if the spasmodic action be once fairly established, neither stramonium nor any other anti-spasmodic will have a very powerful effect. Perhaps the lobelia inflata will be found a valuable addition to our remedies, not only from its possessing the soothing properties of tobacco, but from exciting that copious expectoration, which is sure, in many cases, to give relief.

Formula.—Take 3 ounces of the lobelia inflata, and macerate it for 14 days in 3 pints of proof spirits. Give from 15 minims to half a drachm to an adult, and about 10 drops to an infant of a year old, every few hours, and if no sickness is produced, the dose may even be gradually increased. In the later stages of bronchitis, especially, the combination of a few grains of carbonate of ammonia with each dose will be a valuable addition.

Part v., p. 22.

Narcotism.—A woman, afflicted for many years with *nervous asthma*, recovered from the first day she took a pill composed of extract of opium, and extract of belladonna.

Part v., p. 62.

Inhalation of Ammonia Gas—Suggested in chronic asthma. *Vide* "Bronchitis."

Part vii., p. 64.

Treatment by Nitrate of Potass.—On the approach of a paroxysm, inhale an atmosphere impregnated with the fumes of nitrate of potass, having prepared the following:

Immerse thoroughly, sufficient thick, porous paper in a saturated solution of nitrate of potass, and hang it up to dry. When required, roll up a sheet of proper size, place it in a candlestick, and, the end being then ignited, it gradually burns, and the vapor diffuses itself through the room; or if preferred, may be smoked in a tobacco pipe, as suggested in the use of stramonium leaves under similar circumstances.

Part vii., p. 85.

Apyrexial Asthma.—The following combination of iodide of potassium has been found very serviceable in certain forms of apyrexial asthma, dyspepsia, chorea, etc.:

R. Iodide of potassium, 5 grains; sesqui-carbonate of soda, 10 grains; camphor julep, one and a half fluid ounce.

This dose to be taken three times daily for a month or six weeks.

Its good effects in these cases is attributed to its power of invigorating the system. The iodide of potassium is always inadmissible when there is any febrile disturbance, or when the tongue is coated.

Part ix., p. 62.

Treatment of Asthma.—Dr. Debreyne says: For the last twenty-five years we have seldom prescribed any other formula but the following:

R. P. melleæ elecamp. ℥ss.; flor. sulphuris ℥ss.; p. rad. belladonnæ Div.; p. rad. scille ʒj.; kermes min. ʒj. M. To be divided into ninety powders, of which one is to be taken three times a day.

Dr. D. assures us that he has witnessed excellent effects from this remedy, not only in asthma, but also in a variety of chronic pectoral affections, when they are unaccompanied with fever or inflammatory irritation: as, for example, in what has been called catarrhal phthisis. To allay the cough in such complaints, he combines the use of the Iceland moss jelly with the anti-asthmatic powders. When these fail—which, according to his report is not often the case—he advises a trial of the stramonium inhalation, and also of a strong infusion of the *camphrée* of Montpellier (camphorasma monspeliaca)—with the medicinal virtues of which he was first made acquainted by a writer in the "Revue Medicale" for March, 1821. During the paroxysms of asthmatic dyspnea, he recommends a mixture containing the extract of belladonna, oxymel of squills, kermes mineral, and orange flower-water.

Part x., p. 27.

Spasmodic Asthma—Inhalation of the Fumes of Nitrate of Potass. The patient, subject to spasmodic asthma, made use of a piece of blotting-paper, about the size of his hand, dipped in a saturated solution of the nitrate of potass, and afterward dried. This was placed on a common plate, and being ignited, the fumes were speedily sensible in the room. He described its operation "as clearing the passages and gradually open-

ing the air-tubes." The effect was always produced in about a quarter of an hour, and though he had used the same remedy nearly twenty times, he had never been disappointed in the result. *Part xi., p. 55.*

Iodide of Potassium in Asthma.—Dr. Casey describes the effects of this remedy as being highly satisfactory; he has administered it in more than five-and-twenty cases, and in no one instance, where a fair trial has been made, has it failed to afford unequivocal and decided relief. The dose varies from two to five grains three times a day. A long-continued use of the iodide of potassium will in some subjects occasion an eruption, generally of a pustular form (almost always ecthyma); and I have been twice disposed to attribute to it the occurrence of a slight conjunctivitis; the omission of the medicine for a few days, together with a few doses of rhubarb and soda, will be found sufficient for the removal of these inconveniences. *Part xii., p. 76.*

Ammonia in Asthma.—M. Guérard has used ammonia with success in a hundred cases of asthma.

M. G. applies the remedy in the following manner: He dips a small pencil of charpie into pure liquid ammonia, and then instantaneously into a glass of water, after which he immediately passes it to the back of the throat, touching rapidly the velum, uvula, and œsophagus to a greater or less extent. He seldom has occasion to repeat the operation; when there is merely simple emphysema the improvement has been permanent. The pencil should be neither carried too deeply into the throat, nor allowed to remain too long in contact with the soft parts, more especially the posterior wall of the pharynx; the reaction resulting from such an application is, at times, followed by the most frightful symptoms, menacing instant death. The inhalation of the fumes of ammonia may be used in poisoning by prussic acid, when the patient cannot swallow.

The same remedy may also be used in asphyxia, and in many other cases where its influence is required in the lungs, as for example, in cases of chronic pneumonia and bronchitis, where the parts will often be benefited by its stimulation. In cases, too, where the voice is almost lost, we have found that the fumes of ammonia have acted most beneficially, even when, probably, at the same time we were giving tartar emetic.

Part xiii., p. 80.

Asthma—Spasmodic.—Give tincture of lobelia, with hydrocyanic acid. For an adult the following will do: R. Tr. lobeliæ infl. ʒj.; acid. hydrocyan. gtt. j.-ij. ter vel quatuor in die. But if the paroxysm be severe, larger doses of the lobelia may be given. *Part xvi., p. 134.*

Chloroform in Spasmodic Asthma.—Mr. Chandler relates the case of a lady 56 years of age who had been subject for twenty years to attacks of spasmodic asthma, for the relief of which "the resources of the Pharmacopœia had been exhausted in vain."

Having had the prevailing influenza, she was attacked by her old complaint, extreme dyspnoea, with great sense of constriction, and acute darting pains through the chest and epigastric region. Mr. C. administered half a drachm of chloroform on a sponge, hollowed to fit the mouth and nostrils, and held it at first close to, but not touching the face. In less than half a minute she became excited, waving the arm about, and uttering incoherent expressions, accompanied with loud hysterical laughter. He then placed the sponge in contact with the face, when the limbs gra-

dually relaxed, the arms dropping on the bed, quivering of the eyelids and twitching of the muscles of the face took place, and she fell back on the pillow, drawing deep and prolonged inspirations, between each of which, perhaps eight could be counted. He now withdrew the sponge, opening the curtains to admit air. Respiration gradually became more regular, and she lay without motion, the body well thrown back on the bed, not the slightest vestige of spasm remaining. She enjoyed a quiet sleep of some hours' duration, and the following morning she was quite quiet, no return of spasms, and no ill effect from the inhalation; she is now comparatively well.

Part xvii., p. 92.

Asthma of Old People.—[Pure nervous asthma is said to be hardly ever met with in old people; asthma in them, according to Dr. Day, depending either on organic change in the heart or lungs, or on impurity of the blood. The latter is thus described by Dr. Day:]

Cachectic Asthma.—The impurities contained in the blood seem here to be the exciting cause of the paroxysm. There is an attempt on the part of nature to make the bronchial mucous membrane eliminate the effete matter of the blood in the form of expectoration. Asthma is very often associated with a deficient or morbid action of the kidneys. I have seen so many cases of this form of asthma, that I cannot doubt the intimate connection between the state of the respiration and the morbid condition of the kidney, and, for the sake of convenience, shall term this *urinous asthma*. The term has been already used by Schoulein, Canstatt, and other continental writers.

Urinous asthma seldom occurs before the sixtieth year, and is most common at and beyond the seventieth year. On examining a patient with this affection, we usually find a general suppression of the secretions, the skin being dry and rough, and the bowels acting slightly about twice a week. The urine is scanty, rather turbid, of a reddish-brown color, and so acrid as to produce a sensation of scalding in the urethra, and to give rise to frequent calls to make water. There is usually a feeling of dull, deep-seated pain about the loins. The skin is the seat of intolerable itching, and presents the appearance of prurigo, which, like the asthma, arises from the retention of the urinary constituents in the blood. The eyelids are red, and discharge an acrid humor, and ulcers often form on the lower extremities. The paroxysm of asthma usually occurs an hour or two before midnight, and lasts some hours, terminating most commonly in a copious expectoration of viscid and very salt mucus, which frequently has a strong urinous odor.

Another cachectic form of asthma is connected with the gouty diathesis. It sometimes comes on as early as the fiftieth year, in persons suffering from asthenic or anomalous gout. The premonitory symptoms are the same as those of a fit of regular gout. The patient is led by these symptoms to expect a fit of gout; but instead of this he is seized, usually about midnight or a little before, with a feeling of intense and terrible suffocation. The paroxysm lasts, with slight remissions for some hours, and toward its close a considerable amount of thick mucus, frequently mixed with blood, is ejected. The fit is often succeeded by other efforts to deplete the blood by copious sweats, urinary sediments, etc. If they do not occur, a second paroxysm of asthma may be shortly expected.

Part xix., p. 89.

Asthma, Spasmodic.—Let chloroform be inhaled during the paroxysm, so as to produce a moderate degree of anæsthesia, when the breathing will become easier. *Part xix., p. 91.*

Tartar Emetic in Asthma.—M. Bernardeau advises very minute doses of tartar emetic (from three to six pills, each containing 1-25th of a grain of tartar emetic, every twenty-four hours). *Part xxii., p. 146.*

Asthma.—Dr. Todd winds up his lecture on this subject with the following conclusions:

That asthma is primarily humoral; that it is caused by a poison or morbid matter acting on that portion of the nervous system which ministers to the function of respiration; that it leads to dilatation of the lungs and walls of the chest, to emphysema, and ultimately to dilatation of the heart; that the habit may pass off, the morbid matter being no longer created, the patient ceasing to be asthmatic, just as a person ceases to be gouty or epileptic; and that, ceasing to be asthmatic, the patient may remain, or may not remain, emphysematous, according to the severity and duration of his previous attacks.

Treatment.—Give a quarter to three grains of the extract of stramonium, or from ten to thirty minims of the tincture, or the various parts of the plant may be smoked in a pipe, or the leaves alone rolled up in the form of a cigar. Ether, in combination with opium, will often prove of great service. *Part xxiii., p. 112.*

Hay Asthma.—With regard to the pathology and treatment of hay asthma, it may be remarked that little is known; and in many cases all treatment has proved of no avail. From the state of the mucous membrane, in the case of a gentleman who consulted Dr. Mackenzie, he was led to employ arsenic, from the analogy which appeared to him to subsist between its pathological condition and that of the skin in some forms of prurigo.

In six days nearly every vestige of the complaint had disappeared. The cases of hay fever chiefly benefited by arsenic, are of a catarrhal, rather than of an asthmatic character. Five drops of the solution may be given three times a day. Dr. Fowler recommends the following rules for its administration: Patients from 2 to 4 years old, may take two to four drops of the solution; from 5 to 7 years, may take from five to seven drops; from 8 to 12 years, may take from seven to ten drops; from 13 to 18, may take from ten to twelve drops; and from 18 and upward, may take twelve drops as a dose. If the medicine fails to do good, it may then be alternated with quinine, or they may be given concurrently.

Part xxiv., p. 27.

Thymic Asthma.—[Mrs. M., residing in London, was sent to Gravesend with her child, aged five months, for change of air. A short time afterwards, Dr. Armstrong was sent for, in consequence of the child being seized with something like a fit. Three weeks before, the child was suddenly seized with great difficulty of breathing, while out of doors, becoming almost livid in his countenance, and seeming as if he would be strangled before he could get his breath; on the present occasion there had been some slight "crowing." A few weeks after, the child had a similar attack, apparently brought on by cold.]

The child—continues Dr. A.—was attacked with symptoms of catarrh,

which were slight, and were not considered to require medical attendance. After a few days he experienced another and more severe seizure than any former one, and I was sent for in great haste. The history given was the following: The child became suddenly dark about his mouth, held his breath, his eyes seemed starting from their sockets, and his limbs became violently stretched. He appeared to recover his breath, began to cough, and when I arrived the attack had passed away. He looked frightened; his face pale and bathed in perspiration; pulse weak, intermitting, and quickened; skin cold. There was considerable fullness of the veins of the neck; the chest resonant throughout; sibilus and rhonchi heard over the left lung, and partly over the right; most distinctly heard on each side of the dorsal spine.

That night I was summoned to the little sufferer, who was stated to be dying. The attack was much the same: he had been sleeping, awoke up, became livid, convulsed, and apparently gasping for breath. I found him pale, with his head and face bathed in perspiration, with a feeble intermitting pulse, a loose, frequent cough, troublesome at the termination of the attack. There had been no crowing respiration. The attacks of dyspnoea now became frequent; he rarely went to sleep without an attack on awaking. They were now invariably accompanied with convulsions of an epileptic character. The countenance during the attack, lips especially, was quite livid, the tongue protruded, eyes turned in toward the nose, and nearly constant carpo-pedal contractions. The sides and centre of the lower part of the throat swollen, the jugular veins much distended; and the respiratory murmur was harsh or indistinct at the posterior part of the thorax. As each convulsive attack subsided, there was a peculiar, harsh, incessant, convulsive cough, by which small portions of frothy whitish phlegm were expelled from the trachea; and after some time about a teaspoonful or two was discharged, and the child seemed relieved. The difficulty of swallowing, especially of semi-fluid substances, continued, appearing always to excite coughing. Nothing gave relief; he continued to get worse, and died after an attack—about a fortnight after the catarrhal seizure.

Post-mortem Examination Sixteen Hours after Death.—In the examination of the body, the chest chiefly attracted attention. There was a large thymus gland, extending from the thyroid gland to the pericardium, and laterally filling the space between the trachea, clavicle, and first rib. It was dense, firm, lobulated, of a fleshy color; contained no fluid; it was upward of an ounce in weight; its greatest density and development appeared on the left side; the large veins almost flattened by the pressure; the par vagum and recurrent were pushed aside from their usual course, and must have been much pressed. The heart was of ordinary size, nearly empty. The foramen ovale closed. Internally the larynx and trachea were pale, except at the part where the thymus pressed, which was reddened; the remainder was natural; and without inflammatory appearances. The lungs, anteriorly, were natural; posteriorly, extensively carnified. Abdominal viscera healthy. The head was not examined.

Treatment.—Apply leeches occasionally on the upper part of the chest, and iodine externally and internally; pay strict attention to every source of irritation with a view to its immediate removal, causing the child to lie with its head well raised during sleep. Select light food and a healthy atmosphere.

Diagnosis.—Dr. Copland says male children are chiefly liable to it; pale, white, soft countenance; permanent fullness about the upper part of the sternum, extending upward nearly to the thyroidal region; an almost constant fullness of the veins of the neck, particularly after any effort, dullness on percussion over that part of the sternum. Signs of congestion of the lungs, and from an early period, difficulty of swallowing; the crowing sound is either entirely absent or only partial, the pulse is weak and intermittent, and there are copious perspirations over the head.

Part xxiv., p. 90.

Spasmodic Asthma.—Under this head, Dr. Walshe states the following remarkable and important fact, with regard to the hygienic treatment of the disease. "Change of air is most important; but the kind of change that shall prove most beneficial can only be learned by experience. Some sufferers lose their paroxysms south of the olive line, others are easiest in a cold atmosphere; moisture, the bane of some, greatly mitigates the disease in others. The air of towns suits some, that of the country others; the clear suburban air of London is infinitely more noxious to some asthmatic persons than the foul atmosphere of the worst cleansed and most densely peopled localities of the metropolis; occasionally an individual will be found who is tortured with asthma in one room of a house, free from it in others; and this without any distinct explanation being found in the aspect, the drainage, or any other known condition."

Part xxv., p. 100.

Asthma.—Twenty drops of chloroform inhaled in the handkerchief and repeated carefully, taking care not to produce stupefaction, produced marked relief in a case of severe asthma.

Part xxix., p. 93.

Use of Lobelia in Asthma.—Ten minims of tincture of lobelia, with sedatives, expectorants, or stomachics, is very useful in chronic bronchitis, with tendency to paroxysmal asthma. If the nausea be very excessive, combination, with a few drops of hydrocyanic acid is often useful.

Part xxix., p. 93.

Nervous Asthma.—Brown paper soaked in a solution of nitrate of potash and burnt in the room of an asthmatic patient will give instant relief. The following pharmaceutical paper is still better: pasteboard broken down in hot water, four ounces; nitrate of potash, two ounces; belladonna, stramonium, digitalis, lobelia inflata, all in powder, each twenty grains; myrrh and oilbannum, of each two and a half drachms. Incorporate all these with the paste, divide the mass into sheets of the thickness of three lines; dry and divide in little square pieces. Burn them in little saucers in a well shut-up room.

Part xxix., p. 93.

Spasmodic Asthma.—*Vide* Selections from favorite prescriptions, Art. "Medicines."

Anti-asthmatic Cigarettes.—Add nitre to the leaves of belladonna and of stramonium, by watering these plants, dried and conveniently spread out, with a solution of nitrate of potash, in the proportion of three ounces of the salt to rather more than two pounds avoirdupois of the plants. It will be easily understood, that as this solution penetrates the entire vegetable tissue, the latter will, when dry, burn completely, without the formation of pyrogenous products.

M. Danneey, of Bourdeaux, prepared cigarettes according to this formula, and the benefit derived from their use by a great number of patients induced him to publish it, and to call the attention of practitioners to the mode of treatment, consisting in the smoking of narcotic plants combined with nitre.

Part xxxvii., p. 252.

Asthma.—The remedies at our command, either remove the exciting cause (as emetics to empty the stomach of an undigested meal), or diminish nervous irritability (stramonium), or directly lower nervous and muscular power (ipecacuan, tartar emetic, tobacco), or stimulate to activity the cerebro-spinal and voluntary nervous action, and proportionally diminish the organic and reflex (strong coffee, violent emotion), or seem to act as specifics, which some way or other diminish the asthmatic tendency, but whose true *modus operandi* is obscure (the airs of certain localities). Remedies may be applied indirectly, that is, through the medium of the blood, or directly to the mucous membrane of the bronchi by inhalation.

In cases of a *purely spasmodic* nature, relief from the agonizing paroxysms will frequently be derived from the inhalation of the fumes of burning nitre-paper. The paper used should be blotting-paper of moderate thickness, and free from any ingredients which would cause the smoke to be of an irritating kind. The strength of the solution of potash employed should be about four ounces to half a pint of water. If a piece of paper saturated in this solution and dried, be burnt in the bed-room of a patient before going to sleep, a threatened attack may frequently be warded off.

Tobacco, which acts as a depressant, of all remedies gives the most speedy and complete relief, and would be much more extensively used but for the profound depression and collapse which it is liable to induce. But the mere sedative influence of tobacco is of no use whatever unless some degree of collapse is induced. An asthmatic may cut short the attack, by, directly the symptoms supervene in the early morning, overcoming the tendency to drowsiness, getting up and inducing a slight degree of tobacco nausea.

Ipecacuan given in a large dose, never less than twenty grains, will frequently relieve the paroxysm directly a slight degree of nausea comes on. It may be taken in the form of lozenges, which can be made so strong that three will induce vomiting. Antimony acts in the same way as ipecacuanha, but the nausea and collapse it induces are long and tedious. If an attack be promptly treated it will generally yield, whilst, if allowed to proceed for an hour or two before treatment is adopted, great difficulty will frequently be experienced in relieving it.

Part xxxviii., p. 52.

Connection between the Stomach and Asthma.—From a careful consideration of the relation of the stomach to the asthmatic paroxysm, the following simple rule is most important: *Let no food be taken after such a time in the day as will allow digestion being completed and the stomach empty before going to bed.* Certain articles of diet have a special tendency to oppress and tighten the breathing of those liable to asthma, as anything in any way *preserved*—as potted meats, seasoning, etc.; cheese is bad, especially if old and decayed; also heavy malt liquors. The quantity of food the asthmatic takes should be small; therefore it should be highly nutritious, but still of the plainest kind.

Part xxxviii., p. 325.

BALDNESS.

Remedy for Baldness.—As a remedy for baldness which follows herpes or pityriasis, Dr. Neligan recommends the following pomade, from which he has found great benefit: Prepared lard, two ounces; white wax, two drachms; melt together, remove from the fire, and when the mixture is beginning to thicken, add, with constant stirring, balsam of tolu, two fluid drachms, and oil of rosemary, twenty minims. In very chronic cases, or where the baldness has long existed, a drachm of tincture of catharides may be added.

Part xix, p. 200.

Baldness—Treatment by Fumigation.—In cases resulting from atony or disordered nutrition of the hair bulbs. *Vide Eruptive Diseases of Scalp, Art. "Skin Diseases."*



BATHS.

Steam Apparatus.—The apparatus in appearance is somewhat elegant, is comprised in so small a space that it may readily be carried in the hand, and may be applied either locally or generally, as circumstances may require, with equal facility. It consists of a reservoir for the water, capable of containing a little more than a pint, supported upon three metallic rods, and having a coverlid which is furnished with two openings, one at the centre and one toward the side. From that in the centre arises a tube, terminating in a hollow globe, having attached to it, and communicating with its interior, three short branches furnished with moveable lids. A similar branch is connected with the opening at the upper edge of the reservoir. Beneath, on a pan supporting the parts already described, is placed a spirit-lamp, having four burners, and these, when lighted, quickly vaporize the water in the reservoir above. The steam is then conducted to the globe, and thence, by means of short pipes slightly curved, and which may be connected with any one or all of its branches at pleasure, to the part of the body required. The force and the quantity of vapor expelled, is regulated by a key at the side of the principal cylinder, and which will diminish or enlarge its diameter much on the principle of the ordinary stopcock, while its escape upward is entirely and instantly prevented by exposing the opening at the edge of the reservoir. The way in which it has been used for affections of the joints is simply this: the patient covers the wrist, for instance, with a piece of flannel, large enough for its edges to fall on a pillow, which is placed to support the fore-arm. The nozzle of one of the tubes is then placed beneath the flannel, and the steam allowed to escape. The joint thus enveloped in steam, has usually been allowed to remain for about half an hour; the application being made once a day, or oftener, as the circumstances require. Various modifications of the tubes for different purposes are capable of being adjusted to the openings in the reservoir.

The apparatus is thus used: The patient lies supine in bed, and three or four slender arches of wood, or other convenient material, are placed across the body, so as effectually to raise the blanket from any contact

with it. The apparatus is supported on a stool at the foot of the bed, and one of the pipes allowed to project into the arched cavity, which soon becomes filled with the vapor. In this way all the inconveniences attending a removal to and from the bed are of course got rid of.

Part iii., p. 108.

Local Baths.—M. Mayor, of Lausanne, presented to the Royal Academy of Sciences in Paris, an apparatus for bathing any limb, or any part of one, separately, and in any possible position. This apparatus consists of a hollow cylinder of copper, the two extremities of which are provided with caoutchouc discs, each of which has at its centre a large opening through which the limb is introduced. Varied according to the parts to which they are to be applied, these apparatus form a kind of sleeves, or gloves, or boots, according as they have to inclose the arm, the hand, or the foot and leg.

This kind of portable bath has, M. Mayor states, numerous advantages. It is cheap. It permits the limbs to be bathed without obliging the patients to keep in an irksome position. When, for instance, the elbow joint is to be bathed, two pieces corresponding to the arm and the forearm may be articulated together (by caoutchouc tube, we suppose), so as to be capable of movement on each other, and the patient suspending the apparatus in a sling may walk about, and even make use of the movement of flexion and extension of his arm. Only a small quantity of water is needed, and this advantage, though unimportant in the case of simple baths, is considerable when medicated baths are ordered. The liquid will preserve its temperature a long time, and this, added to the convenience of employing it, will enable the bath to be used longer than is customary. The fluid may be removed or added to by small openings made above and below through the wall of the cylinder. The apparatus may also be used for constant irrigation by making one of these openings communicate with a tube conveying water to the cylinder, and the other one to carry it off.

Part iv., p. 55.

A Cheap Substitute for a Vapor Bath.—Dr. Serre (d'Alais) recommends the following means of inducing abundant transpiration: Take a piece of quick-lime, about half the size of your fist, and wrap around it a wet cloth, sufficiently wrung to prevent water running from it. A dry cloth is to be several times wrapped around this. Place one of these packets on each side of the patient when in bed. An abundant humid heat is soon developed by the combination of the lime with the water, which quickly induces copious transpiration; the effect of the apparatus lasting for two hours at least. When sweating is fully established, we may withdraw the lime, which is now reduced to a powder, and is easily removed. In this way, neither copious drinks, nor loading the bed with coverings, is required.

Part xiv., p. 140.

Hot-Air Bath.—A convenient and efficient hot-air bath may be thus extemporized: The patient being in bed, fasten a blanket loosely round the body; place two chairs upon the bed, so that their backs form an arch over the person, tie them side by side, and over them throw several blankets. A spirit lamp, held beneath the arch for a few minutes, will raise the temperature to 130° or more. If a spirit lamp is not at hand, one may be made out of a tea-pot, letting the wick pass through the spout.

Part xx., p. 322.

Turpentine Bath.—Dr. Moreau speaks highly of a bath of turpentine vapor in catarrhal affections, rheumatism, and severe neuralgias. The patient is shut in a room, into which the vapor is introduced from without, varying in temperature from 45° to 102°. It produces copious perspiration, which greatly diminishes the temperature of the body. *Vide Art. "Turpentine."* *Part xxxii., p. 85.*

BEBEERINE.

Bebeerine.—Another communication on the same subject has been made by Dr. MacLagan, in which the experience of several eminent practitioners is given, which seems to confirm the good opinion which was entertained respecting its virtues. Its powers may, perhaps, in some cases, be inferior to quinine, but in others it is more to be relied upon; and what is of some consequence is, that it is only about half the price, being manufactured at about six shillings the ounce. Dr. Watt thinks that the bebeerine is superior to quinine, in its not affecting the head or causing irritation of the stomach, even when given in very large doses, as much as 96 grains having been taken in three and a half days. It is found, also, that the bebeerine is tardier in its operation as an anti-periodic, acting more particularly on the blood, while quinine, perhaps, acts more on the nervous system. Its tardy operation, however, renders its effects more permanent, somewhat like the slow but durable action of arsenic in ague. Another advantage is, that bebeerine is gently cathartic. Dr. Anderson, another respectable physician, has also tried this remedy with advantage, as an anti-periodic in intermittents. When the time of the paroxysm was known, the medicine was given in three grain doses every hour, till from 18 to 24 grains were taken. It was managed so that the last dose was taken immediately before the expected return of the fever, and was found to be nearly equal in its power to quinine. At any rate, although it may not be quite so powerful a remedy as the latter medicine, it will prove to be a very valuable substitute in many cases; and in some cases of uterogestation, where neither arsenic nor quinine would be advisable, Professor Simpson has been able to give the bebeerine with confidence and success in some very severe attacks of neuralgia of the face and forehead, and has found that it did not possess the irritating and stimulating effects of quinine. *Part xi., p. 94.*

BED-SORES.

As soon as any part which we suspect may be the seat of such sores, exhibits the slightest appearance of inflammation, a solution of the nitrate of silver, ten grains to the ounce of water, should be applied to it by means of a camel hair brush, two or three times a day, until the skin has become blackened, and afterward only occasionally. *Part vii., p. 167.*

Treatment of Bed-sores.—Dr. Graves recommends a nutritious diet,

wine, and the sulphate of quinine. The sores to be washed night and morning with a solution of chloride of soda, in the proportion of 20 or 30 drops to an ounce of water. A liniment composed of two ounces of castor oil and one of balsam of Peru, is to be applied on pledgets of linen, and covered with a poultice of linseed meal two or three times a day. A writer in the "Medico-Chirurgical Review" recommends as a prophylactic a solution of creasote, one part in eighty of water; if the skin should break, the zinc or lead ointment, to which camphor has been added; and in still more obstinate cases, an ointment composed of four parts of fresh prepared tannate of lead and thirty of lard. A German writer recommends equal parts of camphorated spirit and liq. plumbi subacetatis.

Part xi., p. 180.

Means of Preventing Bed-sores.—The thicker the cuticle, the more it will protect the parts beneath; you may, if you attend to it in time, add to the thickness of the cuticle by stimulating the surface of the skin. Nurses know this very well, for when patients are bed-ridden, they wash the parts subjected to pressure with brandy. What is still better, is a lotion composed of two grains of bichloride of mercury to an ounce of proof spirits. When you think that a patient is likely to be confined so long in bed that sloughs may be formed on the os sacrum, begin at an early period to wash the parts two or three times a day with this lotion. I have found it useful in other cases where a patient suffers from pressure. For example, in a case of hernia, which requires to be supported by a very powerful truss, the truss galls and frets the skin, and may at last cause inflammation and sloughing; but, under the use of a stimulating lotion, a thicker cuticle is generated, and such mischief is avoided.

Part xiv., p. 325.

Mortification from Pressure—Bed-sores.—[This occurs, as is well known, in patients who are reduced to a bad condition by typhoid or scarlet fever, or by long confinement to bed for compound fractures or diseases of the hip joint. Mr. Cooper says:]

When you consider the cause of this kind of mortification, you will see the difficulty of curing it, as it not only proceeds from pressure, but also from a low state of the constitution, and hence you may remove the pressure and yet not be able to stop the disease. Still you must endeavor to take away the pressure, and you may employ for this purpose pillows or air-cushions, placed under the patient so as to relieve the prominent parts, or better still, the hydrostatic bed—Mr. Arnott's water-bed—which acts upon the principle of equalizing the pressure. When long confinement has taken place, you must be on your guard: examine the parts of the skin, see that they are washed well with astringent lotions—the lead lotion, liquor plumbi, and also a preparation of camphor—camphorated spirit. By altering the position of the patient, you may sometimes succeed in preventing this mortification. I have often applied the soap-plaster—either white or brown—which is a very good application, though not so good as bathing the parts frequently during the day with strong astringent lotions. When sloughing comes on, the modes of treatment are very different amongst different practitioners. Some poultice, some apply camphorated spirit, and some the liquor plumbi lotion; others a strong solution of the chloruret of soda. These are only secondary means in the treatment of this kind of mortification. *Part xvi., p. 304.*

Bed-sores.—In order to prevent bed-sores, moisten and oil a bladder, and partially distend it with air; wrap it up in a soft napkin, and place it under the part subjected to pressure. In the case of fractures, to preserve the heel from the effect of pressure, a bladder may be introduced beneath it in a flaccid state, and then inflated. *Part xvii., p. 204.*

Prevention and Treatment of Bed-sores.—When the first blush of unhealthy inflammation makes its appearance (which is indicated by a livid color in the integuments) we should take care that all pressure from the parts be immediately removed. This can be done either by the patient's position being changed, or by the aid of bolsters or air cushions. M. Parefai uses a cow's bladder softened in warm water; this being oiled, and partially inflated, is placed under the part suffering from continued pressure. The effect of this support (in a case of fractured leg) exceeded his expectations.

What renders this contrivance valuable, is its simplicity and cheapness; in forms a very manageable substitute for the hydrostatic bed of Arnott.

In addition to these preventives, others, to stimulate the surface and excite the dormant capillaries to more healthy action, should be diligently used. The lotion recommended by Sir B. Brodie is admirable for this purpose. It consists of two grains of bichloride of mercury to an ounce of proof spirit. These two contrivances, if used at the same time, will be found invaluable in the prevention of bed-sores.

If, in spite of our efforts, sloughing takes place, we may divide the progress of the case, for practical purposes, into three parts. The first is the period before the slough is detached, during which we must employ stimulating applications, as a carrot poultice morning and evening, sprinkled with a solution of chloride of soda. Pressure must also, of course, be prevented.

When the slough falls out, a deep, unhealthy-looking ulcer is presented to our notice, forming the second stage of these sores. This ulcer is generally round or oval. The integuments at the circumference are undermined, so that you can readily pass a spatula beneath them, showing that the subjacent cellular tissue has lost its vitality even to a greater extent than the cuticle. The margin of the ulcer is consequently found to overlap its base. The base presents a flabby, uneven surface without granulations, and interspersed with shreds of adherent slough. From this surface a thin sero-sanguineous or ichorous discharge is secreted, having a most fetid odor. In order to promote healthy granulation, and stimulate the parts to cast off the remaining shreds of slough, warm dressings, consisting either of equal parts of gum elemi and spirits of turpentine, or of castor oil and Peruvian balsam, may be applied, dipped in lint, to the bottom of the ulcer, and a linseed meal poultice, spongio-piline, or a carrot poultice, placed over them. After a few days, the ulcer will assume a more florid appearance, and show a disposition to form granulations. It will now be necessary to make a change in the dressings.

This should consist in applying every morning with a camel's-hair brush a solution of nitrate of silver (ten grains to an ounce of distilled water) to the flabby granulations, then covering the surface of the ulcer, and filling it up with fine carded cotton. A piece of oiled silk, large enough to cover both hips and sacrum, should then be placed over the dressings. The oiled silk thus applied serves a double purpose; it will, by preventing the

evaporation of the discharge, keep the cotton soft, and permit its easy removal at each dressing: it will also add to the cleanliness and comfort of our patient, by preventing the bedclothes being soiled. Under this simple treatment, the surface of the ulcer soon begins to assume a more healthy appearance, the granulations at the margin become amalgamated with those at the base, until the cavity is filled up by luxuriant granulations.

We have now the third stage of these bed-sores to treat. As in the second stage our object was to stimulate the surface to healthy action, in this we have to control inordinate action, and repress luxuriant granulations. A concentrated solution of sulphate of copper (applied every morning) will be found most useful for this purpose. The carded cotton and oiled silk, as above recommended, may be also continued until the ulcer is perfectly healed.

Part xviii., p. 235.

Use of Collodion in Bed-sores.—Air-cushions and water-beds are not obtainable by the poor, and it has been the practice to protect parts subjected to injurious pressure either by powdering them with some inert substance, or covering them with diachylon. The first of these measures is of little use, and the other does more harm than good, as by softening the tissues to which it is applied, it only renders them more susceptible to the influence of pressure, especially if the leather on which it is spread gets into folds. Collodion adheres far more closely than diachylon, and is quite exempt from moisture; and in the cases in which it has been tried in the French hospitals, has answered well.

Part xx., p. 177.

Bed-sores—Tannate of Lead.—Mr. Leclerc, senior physician of the civil hospitals at Laon, indicates a method which is calculated to prevent mortification over the sacrum. As soon as the skin reddens or becomes painful, he prescribes a layer of tannate of lead in a humid state, to be spread over the threatened part, and the following is the formula for its preparation:

Corticis quercus contuse, 1 oz.; aquæ, 8 oz.; reduce by boiling to 4 oz.; strain; add liq. plumbi diacetatis q. s. until no further precipitate is formed. The deposit is collected upon a filter.

Mr. Leclerc asserts that of all the topical remedies which he has used for the treatment of this most troublesome complication of protracted disease, none is preferable to tannate of lead employed as described.

Part xxxix., p. 232.

BENZOIC ACID.

Benzoic Acid.—Benzoic was formerly administered in the expectation that it would prove a preventive of gout stones or tophaceous deposits: but as it has no influence in preventing the formation of uric acid, it cannot, of course, prevent these deposits. We are informed by Dr. Garrod that it is very serviceable in increasing the acidity of the urine, to which it imparts slightly irritating properties, and is often of use in cases where there is a deposition of a granular kind of mucus mixed with phosphates. Dr. Golding Bird has long since ascertained that benzoic acid is incapable of converting uric acid into hyppuric, and is, therefore, not a chemical remedy

for gout. He thinks it may be of benefit in some forms of uric acid deposits, by combining with the azotized elements of the blood to form hippuric acid. It is, he says, of no value in phosphatic deposits, but is often of service in catarrh of the bladder. *Part xi., p. 88.*

BITES.

Bite from an Adder.—In a case in the General Hospital, Birmingham, the parts were excised, and the surface cauterized by a strong solution of ammonia. Dry cupping was afterward resorted to, and the parts well smeared with olive oil. The pain and swelling still continuing, he was ordered sesquicarbonate of ammonia ʒiss.; decoction of cinchona, ʒviij., ʒj. every half hour. A tablespoonful of brandy to be taken every ten minutes; a mustard cataplasm was applied to the abdomen, followed by fomentations of chamomile and poppies. The patient recovered. *Part xxiv., p. 349.*

Alcoholic Stimuli in Snake Bites.—Dr. Addy writes, that on the western frontier, where rattle-snakes are numerous, and where physicians are often called upon to treat poisonous wounds by these and other venomous reptiles, they almost exclusively rely upon alcoholic stimulants, given in quantities sufficient to produce intoxication. The patient is not considered safe until drunkenness is produced, this being regarded by the practitioners as evidence of the effects of the poison being overcome.

Part xxxix., p. 57.

BLADDER.

Irritability of the Bladder.—When benzoic acid is combined with balsam copaiba, it has been found to be superior to uva ursi and pareira brava in many cases of great irritability of the bladder, accompanied with mucopurulent discharge.

Formula.—℞. Benzoic acid, one drachm; balsam copaiba, half an ounce; yolk of egg, enough to form a mixture with seven ounces of camphor mixture. M. Two tablespoonfuls to be taken thrice a day.

Part vi., p. 140.

Catarrhus Vesicæ.—The decoction or infusion of the leaves of matico, half an ounce to a pint, suggested in catarrhus vesicæ. Dose—A tablespoonful thrice daily.

Part viii., p. 37.

Hysterical Paralysis of the Bladder.—Sir B. Brodie lays down the rule that in these cases the catheter should not be had recourse to, and the only exception to it is in those extreme cases in which actual paralysis has taken place and the bladder is likely to become diseased if not artificially relieved. A similar want of power over the rectum may occur in hysterical women. *Vide "Hysteria."*

Part viii., p. 62.

Paralysis of the Bladder cured by Cantharides.—A patient was ad-

mitted into the Hôpital de la Pitié with paralysis of the bladder, for the relief of which all ordinary methods of treatment had failed. M. Lisfranc ordered the direct application of tincture of cantharides to the bladder in the following mode: One drop of the tincture was let into the organ through a catheter, and followed by an injection of simple lukewarm water. Next day two drops were similarly instilled, and the like operation was repeated night and morning for several succeeding days, an additional drop of the tincture being added on each successive occasion. By this method of treatment a cure was soon effected. M. Lisfranc found no perceptible local irritation to result from the use of the tincture in an undiluted form, while the direct application of the remedy to the organ affected was clearly preferable, in every respect, to its internal administration.

Part viii., p. 75.

Case of Rupture of the Bladder—Recovery.—[There are few cases of recovery from rupture of the bladder on record. The following case occurred in the practice of Mr. Chaldecott. At midnight on the 7th of April last, a very respectable, temperate, and healthy man, after passing two or three hours at a concert ran across the street to empty his bladder; he came in contact with a post, the top of which hit against the lower part of the abdomen. Mr. Chaldecott observes:]

I saw him about half an hour after the accident. He was faint and suffering severe pain over the stomach and belly, with desire but no power to pass his urine. I ascertained that none had escaped into his clothes, and my suspicions as to the nature of the mischief were confirmed by the circumstance of nothing escaping through a full-sized catheter which was passed easily and completely into the bladder. He was placed in bed, and hot fomentations were used to the belly until reaction took place, with which came increase of pain over the stomach and abdomen. Twenty leeches were also applied; and I now passed a gum catheter, but with the same unsatisfactory result as before, not a drop of the urine escaping through it.

The catheter was passed every three or four hours, although up to two o'clock p.m., fruitlessly.

[The friends of the patient were apprised of the extreme danger of the case, and Mr. Key was called in. When he arrived, sixteen hours after the accident, there were most decided and alarming symptoms of peritonitis; the belly was painful, swollen, and tender; pulse rapid and feeble, and the countenance anxious. A catheter was passed, and nearly an ounce of bloody urine was drawn away. Mr. C. observes:]

At ten o'clock, I gave him two scruples of liquor opii sedativus, which, after a few hours, produced some comfortable sleep; and about four hours from the time of Mr. Key's visit I again passed the catheter, and drew off about four ounces of clear urine. From this time, the pain, swelling, and heat in the stomach and abdomen gradually lessened, and it was evident that the bladder now held, as on each introduction the catheter brought away clear urine. From this time until the 13th (that is the sixth day from that on which the accident happened), all went on well, excepting that a smart attack of gout occurred on the 10th, although the patient had never before suffered one; but on the 13th, from a strong desire to become independent of the catheter, he made straining efforts to pass his water, and he had scarcely passed a tablespoonful, when he felt (to use his own expres-

sion) something give way, and a burning pain all over his stomach and bowels, as if boiling water had been poured over them; and the same symptoms of faintness and distress occurred as when the accident first happened. I saw him within a few minutes of this reopening of the wound of his bladder, for I could not doubt but such had been the consequence of his attempts to pass his water. On using the catheter, not more than a teaspoonful came through the tube. He had now again the symptoms of peritonitis, with the addition of incessant sickness. The same plan of treatment was again adopted—viz., fomentations, leeches, and a full opiate with calomel.

In about four hours after, on the introduction of the catheter, urine was found in the bladder; and by passing the instrument for a fortnight, amendment gradually occurred; a second attack of gout came on, probably from the absorption of the urine into the system. This case may range with many, in proof of what severe injuries the peritoneum may sometimes sustain, and the patient yet survive. Indeed, out of the evil of peritonitis, which usually renders this accident fatal, came the good of such an effusion of lymph, as no doubt glued the bladder where wounded to the contiguous viscera. The fact of gout occurring upon the absorption of the urine which first escaped into the peritoneum, and its aggravation upon its second extravasation, is interesting as connected with the pathology of that disorder.

Part xiv., p. 235.

Treatment of Chronic Cystitis.—This disease, by whatever cause excited, is one of the most painful and miserable affections which we have to deal with. In consequence of the difficulty of successfully treating it, the highest authorities have considered it the opprobrium of surgery.

Dr. Macdonnell recommends the following; \mathcal{R} . Infus. buchu, \mathfrak{z} ss.; tinct. buchu, \mathfrak{z} j.; bals. copaibæ, liq. potassæ, tincture hyosciam. aa. \mathfrak{z} ss.; an ounce thrice a day. And inject the bladder thus: the patient being either erect or recumbent, inject warm water at 98° Fahr. through a No. 9 or 10 elastic catheter, by means of a caoutchouc bag, or a syringe with a three-way valve. When the bladder is cleansed, inject in the same manner a solution of from eight to sixteen grains of nitrate of silver in four ounces of distilled water (at 98°), with or without two drachms of tincture of hyosciamus. Compress the urethra so as to keep the injection in for one minute. Then give the patient a warm bath; and if the pain, etc., remain long, employ fomentations and anodynes. If required, repeat the injection at intervals of two or three weeks.

Part xvi., p. 202.

Cystitis—Scrofulous.—Be particular to rectify any disorder of the digestive organs, and enforce great care as to the diet. Then give, especially if the urine is alkaline, small doses of mineral acids in bitter infusions, of iodide of potassium, or chalybeates. If the disease is obstinate, apply a perpetual blister, or, still better, insert a seton above the pubes, or in the loins.

Part xxi., p. 25.

Strychnia in Paralysis of the Bladder.—M. Lecluyse has published some cases in which all ordinary means appearing useless in removing this affection, he gave strychnia internally, but without any benefit to the paralysis. He then dissolved six grains in alcohol, mixed it with a pint of water, and ordered four injections of \mathfrak{z} j. each to be introduced through the catheter, the bladder being previously emptied. It was followed by complete suc-

cess. But in another case under M. Robert, this gentleman ordered three grains in six ounces of water. This not being soluble, the pupil in charge substituted the sulphate of strychnia for the alkali itself. The injection was given, but symptoms of poisoning soon came on, and the patient ultimately died from the effects of the strychnia upon the system. No appreciable change was remarked in the muscular coat of the bladder; it remained perfectly paralyzed.

Part xxii., p. 187.

Electricity in Paralysis of the Bladder.—Great benefit will be found to result in this disease from the application of electricity as follows: A silver catheter is introduced into the bladder, and a female catheter introduced into the rectum, and made to rest upon the rectovesical parietes; each of these catheters is connected with one of the poles of an electric machine, which is put at first into gentle action, and then continued briskly for two or three minutes.

Part xxii., p. 188.

Bladder, Chronic Catarrh of.—M. Ricord uses caustic injections, \mathfrak{ss} . of nitrate of silver to \mathfrak{ss} . of distilled water. He repeats the injections every three, four, or six days.

Part xxii., p. 263.

Paracentesis Vesicae in Retention of Urine from Stricture of the Urethra.—[Mr. Cooper, in a clinical lecture delivered at Guy's Hospital, remarks, that although the operation of puncturing the bladder per rectum is recommended as the most simple and safe operation for the relief of retention of urine depending upon stricture of the urethral canal, yet its indiscriminate use would be highly prejudicial. He then proceeds to point out the cases in which he considers it ought, and in which it ought not, to be resorted to. He says:]

Surgeons admit three ways of performing the operation of paracentesis vesicae, namely puncturing above the pubis; puncturing through the rectum—or vagina in the female; and, lastly, cutting through the perineum. Of these three, I shall exclude the first, as being in my opinion, the most dangerous, the most liable to lead the extravasation of urine, and the consequent formation of abscesses, and the most likely to be followed by injurious consequences, from the pressure of the canula on the coats of the posterior parts of the bladder, when allowed to remain for some time, as is frequently requisite. If the stricture have existed for a long time,—if the walls of the urethra have become thickened and cartilaginous, so as permanently to constrict and destroy the function of the canal—if, indeed, from the circumstances of the case, you believe the stricture likely to persist, although the patient be, *pro tempore*, relieved of his retention—I say, in such an instance, I recommend cutting through the perineum. If, on the contrary, you have reason to believe, that, by alleviating his present symptoms, you may afterward be able, by proper medical treatment, to overcome the stricture, then I advise the operation per rectum; so that your conduct must be guided by a consideration of the nature of the case you have to treat.

In describing the operation, it will be necessary just to advert to, and bring to your recollection, the anatomical relation of the parts in the pelvic region. The posterior surface of the bladder is entirely covered by peritoneum, the continuation of the layer descending on the anterior wall of the abdomen, which, being prolonged to the posterior portion of the base or fundus part of the bladder, is reflected backward to the anterior part

of the rectum, thus forming a *cul de sac*, known as the recto-vesical pouch. In front of this reflected membrane, the base of the bladder comes closely in contact with the rectum, being separated only by fibro-cellular tissue and recto-vesical fascia, a portion of the pelvic fascia which descends into the pelvis to retain its contained organs in place. The bladder here presents a triangular surface corresponding in its situation to the trigon in its interior, the apex of the triangle being directed forward to the prostate gland and its sides bounded by the vasa deferentia and vesiculae seminales. It is in this triangular space that the trocar and canula should be introduced, and where, it will be seen, it can be employed with scarcely any danger of wounding the peritoneum; for, as the bladder becomes distended in retention, it carries with it the peritoneum, thus placing it almost out of the reach of the instrument, and there will be little fear of injuring the vasa deferentia or vesiculae seminales, if the point of the trocar be kept in a direction toward the median line. Bearing these considerations in mind, place your patient on a table, with his pelvis well raised before you, and in the same position as that required for the operation of lithotomy; then, introducing the index finger of the left hand into the rectum, pass along it the canula, furnished with a "pilot-plug," until it reach opposite the triangular space of the bladder which I have just described to you; withdrawing the pilot, and depressing the canula, until it assumes the direction of a line with the umbilicus, pass in the trocar, and force the two onward into the bladder. The operation is attended with but little pain, indeed, the chief pain is occasioned in endeavoring to introduce the canula without the "pilot-plug," an addition to the instrument which is of great practical advantage; for, without it, the end of the canula seems to catch in the mucous membrane, and to produce such contraction of the bowel as to prevent its onward progress; with it, however, no such difficulty exists, for its smooth, rounded extremity readily passes within the rectum, and pilots the way for the canula. To insure success in the operation, the chief circumstance to be attended to is, in thrusting the trocar and canula forward, to keep the point well elevated or the handle depressed; otherwise, it may pass between the bladder and rectum, and, on withdrawing the trocar, the operator may be extremely mortified to find no fluid following it.

Part xxiii., p. 190.

Retention of Urine in a Child twenty Months old, from Injury—Puncture of the Bladder above the Pubis.—[The ordinary cases of retention of urine are chiefly arising from obstinate strictures in adults, and have certain rules of treatment. But if it is produced from injury, the treatment must be determined by the circumstances of the case, and more especially so, if, as in this case, the patient is a child of tender years. Two days previously the child had fallen down an area, the perineum coming in contact with the ground. On admission, the countenance is described as being full of anxiety, the limbs motionless, and the pulse 115 and weak. All the ordinary means to favor the introduction of the catheter were of no avail, and the instrument could not be passed.]

The child was now quite insensible; the respiration rapid and labored; the pulse 125, very weak, and almost imperceptible. Mr. Wakley therefore considered that no more time should be lost in attempts to render the urethra pervious, and determined to puncture the bladder above the pubis. A glance at the situation of the child will show that the pubic

operation was almost the only one which could be selected. As there was no stricture, there existed, of course, no distended membranous portion of urethra which could conveniently be punctured, and as for the rectum, the "soft mass at the commencement of the prostate gland," which stopped the catheter, was no encouragement to resorting to the rectal operation.

Mr. Wakley, therefore, punctured the bladder over the pubis in the usual manner. A very considerable quantity of high-colored offensive urine was drawn off, and the canula kept in its place by a bandage running round the waist. A large poultice was placed over the abdomen and peritoneum, and the child carefully placed in bed.

In the evening the little patient became conscious and restless for two or three hours, but he soon fell asleep, and slept nearly the whole night. The canula was kept in the bladder for three days, and the urine drawn off at intervals. After this period a catheter was easily introduced into the bladder, and the canula being now no longer required, was withdrawn. The wound healed very rapidly, the urine continued to flow through the urethra, and in eight days the child left the hospital. *Part xxiii., p. 198.*

Chronic Inflammation of the Bladder.—In obstinate cases of chronic cystitis, Mr. Acton has recourse to the following plan of injecting the bladder with nitrate of silver. To effect this, pass a gum elastic catheter into the bladder, and draw off the urine, and then, with a glass syringe, which fits accurately to the instrument, inject the whole of the following solution into the viscus: *R. Argent. nitrat. ʒij.; aquæ destill. ʒiv.; M. fi. inject.* The immediate consequences are, increased pain, which for the moment is very severe, the urine that is first passed is bloody, and some tenesmus is experienced. In a short time, however, these symptoms abate, on the patient keeping his bed, and paying great attention to his diet; at first no liquids should be taken, nor for the first few hours preceding the operation; subsequently the usual quantity of tea or barley-water may be indulged in, and the various barks, particularly turpentine or spruce, should be prescribed. In a very few days the urine will contain less of this ropy mucus, and ultimately none will be noticed; in other cases, the injection may again be resorted to, at the end of four or five days, and repeated until a complete cure is effected. We rarely or ever observe any of the ill consequences which probably might be expected to arise when injections are thrown into this important organ. *Part xxiv., p. 241.*

Dilatation of the Bladder.—Hypertrophy is the great change to which the prostate gland is obnoxious, and is so common after the age of fifty, that Mr. Adams says it may be almost regarded as one of the necessary contingencies of old age, supervening in a manner wholly independent of inflammation. The condition of the bladder varies remarkably in this disease; occasionally it is so contracted and thickened as to hold but a very small quantity of water, and in other cases is so much expanded as to hold many pints.

In the first of these conditions, Mr. Adams believes that there has been inflammation of the prostate, extending to the bladder, and sudden increase in the size of the gland; and in the second that the increase has been gradual, and accompanied by compensative dilatation of the bladder. This dilatation, proceeding in every direction, presses sometimes on the rectum, and produces obstinate constipation, giving rise to that pouch which is so

convenient a receptacle for small putrefying quantities of urine, or for calculi. There often happens, also, a hernia of the mucous coat of the bladder through its thickened muscular fibres, which materially aggravates the patient's danger; for these cysts, or supplementary bladders, answer admirably to contain the urine, but, being destitute of muscular fibres, are unable to expel their contents, which, rapidly decomposing, inflame the bladder, and not unfrequently set up the peritoneal inflammation, which finally kills the unfortunate patient. The author lays particular stress upon what is called the *fluttering blow of the bladder*, as a pathognomonic sign of this condition; and as this is an important practical point, we shall present our readers with his exact words:

"As this is a subject in a great measure passed over by writers on diseases of the urinary organs, I shall take the liberty of dwelling somewhat upon it. So far as I have observed, these cases are usually attended with pain about the region of the pubes, and in the perineum, and along the urethra, especially after the evacuation of the bladder; there is generally more or less irritability of this viscus evinced by a frequent desire to pass water; hence the surgeon's attention is directed to the state of the bladder; the catheter is introduced—it may be without difficulty, or at any rate with no more difficulty than commonly attends its introduction when the prostate gland is hypertrophied; and on the escape of some urine, the flow of water suddenly stops, and a *fluttering blow* is struck against the point of the instrument, as if a solid body came in contact with it: the surgeon, believing that he has drawn off the whole of the urine, is about to withdraw the catheter, when a small quantity more escapes, and perhaps the blow is repeated. The impression first conveyed to the mind of one unaccustomed to it is, that there is a stone in the bladder; but the experienced hand at once detects the nature of the case, or at any rate the idea of the existence of stone is at once removed from his mind.

"It is not long since that I was in attendance on a valued medical friend, who was laboring under all the symptoms of hypertrophied prostate, with its concomitant horrors, the disease approaching rapidly a fatal termination, when his medical attendant in the country assured me that he had detected the cause of his disease in the existence of a stone in the bladder. On introducing the catheter, I was at once convinced that the opinion was erroneous: I felt the fluttering blow upon the catheter, and ventured to diagnosticate a considerable pouch in the bladder: my opinion was verified on the examination of the body after death, which took place soon after."

Part xxv., p. 216.

Treatment of Nervous Affections of the Bladder.—Irritability and neuralgia of the bladder have many points in common; indeed, few authors devote a distinct chapter to the latter affection. Neuralgia of the bladder is described by Dr. Gross to have many symptoms in common with neuralgia affecting other parts; sometimes the pain is located in one spot, at other times it extends to neighboring organs. There is frequent desire to pass water, and the urine is thrown out in jets, and in small quantity; a distressing soreness is left behind in the urinary passages. A systematic course of cathartics seems most beneficial. If the disease be complicated with amenorrhœa, the cathartics should be combined with aloetic and emmenagogue preparations.

A systematic course of purgation is valuable also in neuralgic affections

of other parts of the body, accompanied by inflammatory symptoms. The carbonate of iron may be employed; but if arising from malarious influence, quinine and arsenic are to be preferred; gr. iv. of quinine may be taken every three hours, until 15 or 20 grains have been taken. To eradicate both vesical and other forms of neuralgia, employ the following: Acid. arseniosi, gr. ij.; strychnine, gr. j.; ext. acuti, gr. viij.; juss. opii, gr. v. M. These ingredients are to be carefully incorporated and divided into 16 pills of equal size, of which one may be given every 4 hours, or 4 in the 24 hours. When nausea begins, the pills must be given less frequently, or $\frac{1}{2}$ or $\frac{2}{3}$ of a pill may be employed at a time. The exhibition of the pills also should not be continued longer than a week or ten days at a time, to allow the stomach a short recess, when they may be again resumed.

To moderate the violence of the paroxysms, large doses of narcotics are frequently indispensable. Of these the best are the salts of morphia, either alone or in combination with nauseants, according to the state of the vascular system. When the pain is very violent, or when narcotics cannot be taken by the mouth, opiate injections or suppositories should be used.

An emetic of ipecacuanha, or tartrate of antimony, at the approach of the paroxysm, will sometimes have the effect of cutting it short, or materially abridging it. The remedy is particularly indicated when the disease is associated, as it often is in malarious districts, with gastric and biliary disorder.

Much benefit may also accrue, in many cases, from the warm bath, or the application of steam to the affected part. This can be readily effected by connecting one end of a gum-elastic tube with the spout of a tea-kettle, filled with hot water, and placing the other under the bed-clothes. Fomentations with hops, opium, or laudanum, will also be highly serviceable.

Part xxvi., p. 109.

Treatment of Paralysis of the Bladder.—A clear and practical distinction can be established between paralysis of the neck of the bladder and paralysis of the body of that organ; the first form being attended with incontinence, the second with retention.

Dr. Gross cautions the surgeons against evacuating the whole of the urine, accumulated in an over-distended bladder, at one time, as he is satisfied that he has seen several patients die from the severe depression induced by the sudden removal of the distention. In all such instances, he allows a small quantity of urine to remain in the bladder; and also applies a bandage to the abdomen, as after tapping or parturition. Cathartics he considers to be of the utmost service in all descriptions of paralysis of the bladder; and of these, calomel, with castor oil and turpentine, is his favorite. Emetics also are not to be neglected. Of remedies acting especially on the nervous system, strychnine, cantharides, and arnica, are the most potent, and are best given in the following formula: Strychnine 1-16th of a grain, cantharides 1-8th of a grain, arnica from 3 to 5 grains three times in the 24 hours. Of arnica in paralysis of the bladder from fever, masturbation, and general exhaustion, Dr. Gross speaks very favorably. He prefers the tincture, in doses of from forty to sixty drops thrice daily.

Counter-irritation, such as a succession of blisters over the dorso-lumbar region, is useful in almost all but the inflammatory form of vesical paralysis. The actual cautery is also a proper remedy. *Part xxvii., p. 110.*

Paralysis of the Bladder.—In a case of this affection from over-distention, the patient, a female, was ordered to be electro-galvanized three times a week, and to take ten minims of the tincture of the sesquichloride of iron, three times a day, in infusion of quassia. The catheter to be used twice a day. In a fortnight the patient was able to pass the urine voluntarily, and in a few days more was completely recovered.

Part xxvi., p. 342.

Puncture through the Rectum for Retention of Urine, from Stricture.—After detailing cases in which the bladder was punctured through the rectum with perfect success, Mr. Hilton concludes thus:

"Let me now, in a few words, place before you the objections which have been brought against an operation, the useful application of which these lectures have been intended to exemplify.

"1st. It has been alleged that there is a great danger of wounding the peritoneum and of causing peritonitis; but you know, at present, that, in puncturing the bladder through the rectum, the peritoneum is not wounded at all.

"2d. Wounding the vesiculæ seminales or the vas deferens. The experience of Guy's Hospital shows that this accident happens very seldom, and when it does occur, it is not of much importance.

"3d. It is objected that it is very difficult to retain the instrument in the bladder and rectum; but this apprehension need not be entertained, for you have seen how steadily our patients now retain the canula in the rectum, thanks to the improvements in our instruments.

"4th. The operation is opposed, because a communication between the bladder and rectum may persist for an indefinite period. This, indeed, may happen, but is very rarely the case. Indeed, I may safely say, that most of those who uprightly and without prejudice find fault with the operation, are but very imperfectly acquainted with the actual results of the numerous cases which have thus been treated. Between twenty and thirty operations of this kind have been performed in this hospital within the last few years, with a success as to result, the most encouraging; and I doubt whether a like success could have been attained in cases of equal severity by any other mode of treatment; and that, after all, is the important point for our consideration.

"If the operation of puncturing the bladder through the rectum be, as I believe it to be, devoid of most of the dangers which have been, perhaps, only theoretically attached to it, and also free from many of the dangers and difficulties of the other or substitute operations, it is surely time that surgeons should give it more consideration and more credit for good on its own merits than it has received of late years." *Part xxvii., p. 148.*

Paralysis of Bladder from over-Distention after Delivery, Simulating Peritonitis.—In this case, twenty-four hours after delivery, symptoms resembling peritonitis supervened. The labor had been tedious and protracted, but no manual or instrumental interference had been required. Dr. Lever passed the catheter and drew off seven pints of urine, by which the symptoms were speedily relieved. The bladder, however, from over-distention, was afterward found to have lost its contractile power, and the catheter was required twice daily for its relief. Nine weeks after her confinement she was admitted into the hospital.

She was ordered to be electro-galvanized three times a week. Water

to be drawn nocte manequæ. R. Tinct. ferri sesquichloridi, minim. x., æl. inf. quassie, t. d. The patient was restored to health.

Dr. L. was afterward called to this patient, her attendants supposing she was suffering from puerperal peritonitis, but the diagnostic symptoms were wanting; pain there was and increased by pressure; the pulse quickened, but not *wiry*; the skin moist, and the perspiration had a urinous smell; her position was peculiar, but was, that which is often remarked in over-distended bladder; the hand pressed upon the perineum. The introduction of the catheter soon solved the doubt, and her recovery of the power of micturition was due to that valuable agent recommended by Dr. Radford of Manchester.

Part xxvii., p. 217.

Bladder—Gout in the.—In this disease the mucous membrane of the bladder readily secretes pus. If this is not freely evacuated, the urine becomes alkaline from the retention of a small portion of it, and the subsequent formation of ammonia by the decomposition of the urea. This alkaline urine again keeps up the irritability of the bladder, which thus goes on secreting pus. There is also, in this disease, frequently incontinence of urine, not because the sphincter vesicæ is paralyzed, but because the bladder will not allow the accumulation in it of even a small quantity of urine. In other cases there is an opposite condition; the patient may have retention of urine. This is easily explained: in the former case, the gouty poison was irritating the mucous membrane; in the latter it has affected the muscular coat. Now, if, in these cases, we find it clearly proved that the man has the gouty diathesis, and that there is no stone in the bladder, we may consider the eruptions to arise from gouty inflammation attacking the bladder. In the treatment, we must first counter-irritate, but not with turpentine or cantharides, for obvious reasons, but with mustard or strong ammonia. To relieve pain, if it be that form of the disease in which pus is generated, we may apply opium endermically, or apply an opiate liniment over the bladder, or we may give an enema containing opium by the rectum, repeated or not according to the relief obtained. In these ways all kinds of irritability of the bladder, even that produced by cantharidine, may be relieved. It should be borne carefully in mind, that, whenever gout attacks internal organs, it is a disease of an asthenic character, and therefore depletory measures should in no case be employed.

Part xxviii., p. 141.

Irritability of the Bladder treated by Nitrate of Silver Injections.—A patient, of nervous temperament, with soft and flabby muscles, had irritability of bladder, which ordinary remedies had failed to relieve. A solution of nitrate of silver, twenty grains to the ounce, was introduced into the bladder, and so great was the relief that the symptoms entirely disappeared for six months. At that time the same treatment repeated completely removed the symptoms.

Part xxviii., p. 208.

Irritable Bladder.—[The bladder is frequently made irritable by different states of the urine and various concretions, but it may be irritable without these being the primary cause. Dr. Jones gives us some of the most interesting examples of *direct* and of *sympathetic* irritation of this organ.]

The most simple instance of direct irritation may be observed when some irritating liquid substance, as cantharides, turpentine, or copaiba,

exists in the water, or when some solid body, as a calculus, is lying in the bladder. These act as, for example, chlorine or a foreign body in the bronchial tubes would do in producing cough. I need not read you examples of irritation thus produced; I may, however, repeat, that simple excess of acid or alkali in the urine alone, rarely, by itself, causes irritable bladder, though most decided instances of their effect may be observed.

Here, for instance, is an example of the effect of acidity. I was sent for one evening to a gentleman who was suffering intense abdominal pain, which came on at intervals of a minute, and which he attributed to indigestion. The fits of pain, on reaching to the greatest intensity, relaxed, soon again to recur. With a full dose of calomel and opium, ether and sal volatile, in three hours this colic subsided; but he began then to complain of scalding and difficulty of passing the water. During the night he had constant calls, passing only a teaspoonful of urine at a time. For this he took nitre, carbonate of potass, and barley-water. The following morning the irritability of the bladder had diminished very much, and during the day it disappeared. On examining the urine made during the time the bladder was so irritable, I found no trace of blood-globules, mucus, or pus-globules, but only a state of very high acidity, which, in twelve hours, gave rise to a very large deposit of uric acid. I believe this excessive irritability of the bladder arose only from the intensely acid state of the urine.

Sometimes, instead of the direct irritant being applied inside the bladder, it acts from the outside. As examples of this, I may mention the irritable bladder of pregnancy, of abdominal tumors, and even of feces which have accumulated in the bowels.

In a case of irritable bladder arising from this last cause, the patient's general health being good, except irregular action of the bowels, Dr. Jones advised some camphor and henbane at night, with cold water enema, and an aloetic aperient. A month afterward, the patient considered himself cured.

Dr. Jones next proceeds to consider that direct irritation which depends on idiopathic inflammation, independent of the irritating qualities of the urine.

Idiopathic inflammation of the bladder is the most common in advancing years, when the prostate gland ceases to be healthy; then some very slight cause is sufficient to determine the commencement of the inflammatory action which gives rise to most urgent symptoms of irritable bladder. Exposure to cold, the fatigues of a journey, inconvenience causing voluntary retention of the urine too long, each of these I have known to be the immediate cause of acute inflammation of the bladder, in consequence of which the water has been passed every hour, and even oftener. At first it is scanty, high-colored, with blood-globules, and quickly pus-globules are found; and these continue when the inflammation is subsiding, and the frequency and urgency of making water are much lessened. Such an attack I have watched through its whole course; the symptoms rapidly becoming more and more serious, constant hiccough and nausea, producing prostration, which threatened the life of the patient. These symptoms, however, I have seen yielding after treatment; and in two months no trace of blood or pus remained in the urine, and the patient in all respects entirely recovered. More commonly the acute attack passes into chronic disease, and then with more difficulty is removed; or, after months and

sometimes years of suffering, the kidneys become affected, and the patient sinks.

[He illustrates this irritability by some very interesting cases, such as by crushing a calculus, cutting for stone, and from a stricture.]

In most cases, as the mucous membrane becomes diseased, the urine gradually becomes so also, and then it also acts on the bladder, greatly increasing the suffering and the difficulty of the cure. Thus the two causes acting together, react also on one another. The same result is produced when the irritable bladder is caused at first by the state of the urine alone, as, for example, when it is highly acid or alkaline, then it slowly acts upon the mucous membrane, and finally, both the state of the membrane and the state of the urine together hasten on the disease.

In distinction to these cases of direct irritation, there are others which I may class together under the head of sympathetic irritation, in which apparently neither the urine nor the mucous membrane of the bladder are perceptibly different from the healthy state.

The most frequent cause of this sympathetic irritation is probably disease of the kidney itself, although it is by no means the fact, that in all diseases of the kidney irritation of the bladder is produced. Most commonly the irritation occurs when some calculus or inflammatory action exists in the pelvis of the kidney; then a small quantity of purulent matter mixed with the urine may indeed pass into the bladder, but this usually bears no proportion to the amount of irritation which occurs. The first explanation of this irritation that presents itself is that the inflammation extends down the ureter to the bladder; but on *post mortem* examination this cannot usually be proved, and hence these cases must be classed under the head of sympathetic, and not of direct irritation. Hysterical irritation of the bladder belongs to the class of cases of which I am now speaking. In all supposed hysterical diseases, the first thought should be, whether the hysteria is the cause or the consequence of the disease. Is the hysteria idiopathic or symptomatic? Often it will be found that hysteria is but one symptom of a complaint, which, in addition to other effects, produces irritable bladder; but occasionally no other complaint can be detected, and no cause for the irritable bladder can be found except the hysteria itself. The previous history will often assist in giving the true answer to the question which you must ask before you can commence your treatment on reasonable grounds.

Moreover, whatever may be the cause of the irritable bladder, yet in all cases, whether of direct or sympathetic irritation, both in men and in women, a smaller or a greater part of the irritability may be always traced to nervousness. This is usually seen in the fact, that in such patients a passing thought will suddenly cause the most urgent desire to empty the bladder, and that while the mind is fully occupied, the irritability will be less distressing.

In irritable bladder, more perhaps than in most diseases, it is requisite that, before any method of treatment is begun, you should endeavor to obtain clearness as to the cause of the disease. It is produced by so many different causes, that specific treatment of the irritation will rarely suffice. You may palliate it as you would a cough by opiates and sedatives; but to effect a cure, the cause of the disease must be found, and be capable of removal. Ask yourselves, then, first, is the irritation direct or sympathetic; if the former, is it simple or compound, internal or external?

While endeavoring to remove the cause, you will often find palliatives of great importance. Of these, the most important are camphor and opium. Three grains of camphor and half a grain of opium made into a pill, taken twice or three times daily, will often prove beneficial. In some cases, palliatives fail, and cure is impossible. In these, mechanical contrivances of the present day do away with much of the discomfort and annoyance which otherwise would have to be endured.

Part xxx., p. 78.

Irritability of the Bladder.—1. *As a Consequence of Gonorrhoea.*—Give iodide of potassium, and active tonics, as cinchona, with doses of Plummer's pill; or colchicum, combined with blue pill; or ten grains each of powdered guaiacum and calcined magnesia once or twice a day.

2. *As a Consequence of Diseased Prostate.*—Pass a catheter occasionally, i.e., with intervals of two or three days or longer. If there be some little purulent discharge, apply a little nitrate of silver to the prostatic portion of the canal.

3. *When accompanied by more or less Mucus in the Urine, or Mucopurulent Deposit.*—Apply stimulating injections to the bladder. Nitrate of silver from half a grain to two grains to the ounce, increased, if need be, to ten and even fifteen grains to the ounce. Give half a grain to a grain of acetate of lead, with two grains of extract of opium. Give nitric acid, one or two minims to the ounce of water, when the urine is loaded with earthy phosphates. Creosote and copaiba are also recommended in some cases. The injection of simple warm water is often useful, and when the urine is very offensive, a solution of chloride of soda, from six to ten grains to the ounce of water, used once a day, is recommended. The vulcanized india-rubber bottle, fitted with pipes and valves, is the best instrument. In non-inflammatory cases, give infusions of diosma, or buchu, or uva ursi, combined with hyosciamus or camphor, and even copaiba or chios turpentine. Pareira brava is also strongly recommended, but often disappoints us.

Part xxx., p. 83.

Bladder—Apparatus for Injecting.—Adapt a short bit of india-rubber tubing to the end of the catheter before its introduction. After introducing it, the conical nozzle of a common ear-syringe is easily admitted into the other end of the elastic tubing, and the thing is ready for use. This keeps the catheter more steady. It prevents joggling. It saves the use of a stopcock, as the tube is compressible, and lastly, it connects any sized catheter with the syringe.

Part xxxi., p. 168.

Bladder—Injection of.—Take a piece of elastic tubing, the diameter of a quill, and about four feet long. To one end must be attached a small india-rubber funnel, the other end grasps the end of the catheter. When ready, the funnel end is held up at arm's length, and water poured in; the pressure of the column of fluid fills the bladder, which may be emptied again by depressing the tube. This tube might conveniently be attached to the end of the female catheter to prevent the need of having any utensil in bed.

Part xxxii., p. 176.

Method of Removing Foreign Bodies from the Urethra and Bladder.—Mr. M. H. Collis recommends incision in the mesial line, in front of the anus, for the removal of foreign bodies from the bladder. He says: "The membranous part of the urethra is not more than an inch to an inch and a half distant from the verge of the anus; hence we can strike it with ease

and certainty, when the perineum is in a healthy condition. By drawing the rectum down with the forefinger, while an assistant raises the bulb toward the pubis by the staff, the knife can be inserted with safety to the depth of an inch or so in the mesial line, and then, by depressing the curve of the staff, the point of the knife comes directly in contact with the membranous portion. If the incision be made accurately in the mesial line, no vessels will be wounded; and as the membranous portion only is opened, there can be no extravasation of urine forward. The incision in the integuments might be enlarged by commencing it further forward, if necessary, to give room for the extraction of a larger substance, or for the introduction of the finger and forceps together. . . . Even when the fragment of catheter or foreign body has slipped into the bladder entirely, the central incision would seem to be the easiest and least dangerous operation for extracting it." *Part xxxii., p. 177.*

Irritable Bladder.—Where there are all the worst symptoms of stone, without any appreciable cause, if the usual remedies fail, you may perform cystotomy, by making an incision in the mesian line of the perineum, in the manner of Allarton's operation for stone, the object being to cut across the nervous plexuses and irritable parts of the neck of the bladder.

Part xxxiii., p. 209.

Bladder and Uterus—Reciprocal Sympathies of.—*Uterus.*

Irritable Bladder.—The greatest relief will often be obtained from the injection of the bladder with carbonic acid gas. This may, if desired, be combined with the vapor of chloroform. A caoutchouc bag holding four ounces, and an ordinary catheter, may be conveniently used for this purpose, a space being left in the neck for a piece of sponge soaked in chloroform.

Part xxxviii., p. 161.

BLENORRHAGIA.

Monesia.—The extract of monesia, in the form of pills, in doses of from twelve to forty grains, during the day, recommended in cases of blenor-rhagia.

Part ii., p. 77.

Seat of Blenorrhagia in Females.—"In females," says Dr. Gilbert, "the seat of election of blenorrhagia is the meatus urinarius, as in the man; but in all cases where I have used the speculum, I have seen a *uterine discharge* accompanying that of the urethra, and continuing after the latter is cured, so that the neck of the uterus may be considered the principal source of the blenorrhagic flux in women. Nevertheless, some modern writers have designated the female clap by the term vaginitis or inflamed vagina; but in the immense majority of cases, the vagina does not secrete the discharge, and if it be sometimes red, this appearance is transient, and yields rapidly to repose and cleanliness. It is only in a few rare cases that we meet with a milky or purulent discharge, really furnished by the vagina; on the contrary, in every woman who has contracted a clap, there exists, during the two or three weeks, a characteristic suppurative, together with a discharge, originating in the neck of the

uterus, which last, by its continuance after the cessation of the urethral symptoms, may be confounded with leucorrhœa." *Part ii., p. 137.*

Blenorrhagia of Vulva.—*Vide Art. "Vulva."*

Blenorrhagia of the Excreting Duct of the Vulvo-Vaginal Gland.—Dr. Salmon directs attention to the affection very common among prostitutes, yet little known to the generality of practitioners, namely, purulent hyper-secretion of the excretory duct of the vulvo-vaginal gland, a disease first pointed out by M. Huguier, and described by him as the occasional source of blenorrhagia in the male. It is now universally known, that there exists on each side of the vagina, at the orifice, and imbedded in the labia, a glandular body, the duct of which, half an inch long, opens just at the base of the hymen, or by the caruncula myrtiliformes. During erotic excitement, a viscid fluid, similar to the prostatic fluid in the male, is abundantly poured forth to lubricate the female external organs.

The signs by which the disease may be known are derived from examination only. The woman experiences no inconvenience, nor does she think that she needs medical aid. Moreover, she may, if she pleases, conceal her disease, by making water, or by using as an injection a strong solution of alum, shortly before the visit of the inspector. This discharge of pus may be easily overlooked, owing to the narrowness of the duct. It is necessary that the surgeon should first make moderate pressure of the labia against the rami of the ischia, by the thumb applied in front of the anus, that it may be ascertained whether the gland be tumefied. In the natural state, it cannot be detected by the touch; if swollen, it feels like a rounded body, the size of a nut, or larger. Firmer pressure made against the ischium from within will cause the contents to escape. The normally constituted fluid is thick and clear, and appears at the extremity of the duct in not larger quantity than a drop or two. The fluid from the inflamed gland is either thick, more abundant, and mixed with mucus, when the girl should be put under surveillance; or yellow and puriform, when she should be removed to a hospital.

The treatment resembles that of blenorrhagia in other situations. The result is much more rapid. Absolute rest; injections of nitrate of silver, with Anel's syringe; cauterization with the tincture of iodine; baths. The duration is about twenty days. *Part xxxi., p. 208.*

BLOOD-LETTING.

A low feverish state is apt to be induced by a too long protracted use of depletory and debilitant remedies. *Part i., p. 28.*

Effects of Excessive Blood-letting in cases of Injury of the Brain, as in Concussion.—Sir B. Brodie remarks, that where bleeding has been carried to a great extent, symptoms frequently occur which in reality arise from the loss of blood, but which a superficial observer will be led to attribute to the injury itself, and concerning which, indeed, it is sometimes difficult even for the most experienced surgeon to pronounce, in the first instance, to which of these two causes they are to be referred. Re-

above the ankle. In puncturing either of the veins before the malleoli, be careful not to touch the bone with the point of the lancet. If the vein bleed in a stream, catch the blood in a vessel; but if it only dribble, the foot should be put into the hot water, and judge of quantity by the color.

Part xiv., p. 133.

Criterion for the Regulation of Blood-letting.—The time for the continuance of blood-letting should be determined not by the blood drawn ceasing to be bulky, but by its coagulating more rapidly than in the normal state.

Part xvi., p. 111.

BOILS.

Use of Yeast in the Treatment of Boils.—To an adult afflicted with this painful furunculoid eruption, give a tablespoonful of yeast with some water three times a day. Smaller doses may be given for children.

Part xxvi., p. 294.

Treatment of Boils and Acne—Mr. Startin's Treatment.—We have classed these diseases together because they appear to depend very frequently on similar states of the constitution, and are also amenable, for the most part, to similar plans of treatment. The great degree of success which we have observed to accrue from that pursued at the Hospital for Diseases of the Skin, makes us desirous of attracting to it the attention of the profession. It consists, essentially, in the combination of ferruginous salts with saline aperients. In the common forms of acne, as acne simplex and punctata, Mr. Startin usually prescribes ferri sulphat. gr. ij., magnes. sulph. ʒi. ter die sumend.; ordering also a small portion of an ointment, containing the ammonio-chloride of mercury, gr. x. ad ʒj., to be applied to each pimple every night. The acne indurata is characterized by much more of inflammatory condensation of tissue, for the removal of which it is usually necessary to excite the absorbents to increased action, and the iodide of iron, in doses of gr. iij., three times daily, appears to be its most efficient remedy. All who have attentively watched the phenomena attendant on the furunculoid epidemic which has been so rife of late years, will be aware that its outbreak in individuals has been very frequently preceded by headache, giddiness, lassitude, dyspepsia, and other evidences of a disordered state of the circulating fluids. This granted, and we have at once a scientific basis on which to ground the requisite treatment. By the exhibition of full doses of iron, in combination with saline purgatives, the blood is at once depurated and renovated. The usual prescription at this hospital is mist. ferri acid. ʒiij. ter die, and under its use the improvement in the general health is often no less manifest than the rapid subsidence of the local disease. With greater care in regard to purgation, the same plan may be adopted in cases of small carbuncles.

Part xxvii., p. 161.

Boils—Use of the Acid Nitrate of Mercury.—A solution of the nitrate of mercury in strong nitric acid is in very common use at the Hospital for Cutaneous Diseases, and constitutes a very convenient form of caustic. Its formula is—R. Hydrargyri ʒj., acidi nitrici (specific gravity 1.50) ʒij.; solve. The solution produced is a clear, colorless fluid.

Mr. Startin thinks there can be little doubt as to the superiority of the caustic treatment over that by the knife, even in the case of very large boils. The pain of the incision, the large sore caused, and the unsightly scar which follows, constitute very formidable drawbacks to a practice for which there is no real necessity. At this hospital, where cases of boils are very common, the knife is never resorted to. The general treatment consists in giving aperients and steel conjointly, and the local in applying to the apex of the furuncle a full-sized drop of the acid nitrate solution. The morbid action generally terminates coincidentally with the application, and the core is thrown off through a comparatively small opening, the resulting cicatrix being insignificant. *Part xxxi., p. 240.*

Observations on Anthrax.—Mr. Lloyd, who acted a long series of years with the late Mr. Abernethy, stated that anthrax and boils were almost unknown in Mr. Abernethy's time, but that, of late years, from the importation of much bad corn into England, he is inclined to believe, and perhaps from meteorological causes, anthrax has assumed almost the character of an epidemic. Like Mr. Syme, he thinks anthrax, or carbuncle, to be a circumscribed inflammatory condition of the true skin, attended with considerable constitutional derangement, as well known to most practitioners; Mr. Lloyd disapproves of the stimulating plan of treatment, and prefers salines, with *Mindererus*, to diminish fever, with large free crucial incision made early in the inflamed part.

The object of the incision is to diminish the inflammatory action, which, he believes, is of a low specific kind, and that by plugging the parts subsequently with lint, this carbuncular inflammation gives way to common healthy inflammation and granulation. He does not advise the external use of either caustic or what are called warm digestive ointments; they are very old-fashioned, and merely protract unnecessarily the period of recovery, and destroy more of the skin than is expedient. In cases of anthrax as well as large boils, the evil is aggravated, Mr. Lloyd believes, by giving patients too much food of a stimulating kind. The core of an anthrax, or boil, is perhaps not so often dead cellular matter, as a new morbid deposit, like the morbid deposit in the pleura, or in or around joints, and pointing to an inflammatory action going on in the system. Simple milk diet, poultices, salines, and diaphoretics, with free crucial incisions, answer every purpose, with the subsequent exhibition of a light bitter, with iodide of potassium, during the period of convalescence. *Part xxxiv., p. 196.*

Boils and Carbuncles.—As these depend on a constitutional cause, the constitutional treatment must be combined with the local. The application of concentrated tincture of iodine rarely fails to abort an incipient boil. Nitrate of silver and sesquichloride of iron have been used for the same purpose. If gangrenous, apply strong nitric acid to the sloughing margin. If there be a large amount of sloughing, but not unless, make a free crucial incision. Water dressing is the simplest and most soothing application, and the most scrupulous cleanliness must be observed.

* * * * *

The best way of treating all these boils and carbuncles is to pinch up a little of the skin when the carbuncle is just commencing, and to carry a sharp-pointed bistoury, with the cutting edge upward, through the base

of the little hard substance, and so divide it completely. This is almost a never-failing mode of arresting carbuncle, if done early enough.

Part xxxv., p. 149

Treatment of Boils and Carbuncles.—Dr. Shillitoe gives his plan of treatment as follows:

"My plan is to order a thick solution of the aqueous extract of opium, of the consistence of treacle, to be painted on and around any suspicious spot that may arise. This soon dries, forming a coating, which requires renewing three or four times a day. Generally twenty-four hours' application is sufficient to arrest the further spread of the inflamed spot. I then order a plaster of equal parts of soap, mercury, and opium, spread on thick leather, to be placed on the spot. If there is a pustule, I evacuate it, and leave a small hole in the centre of the plaster to allow of the escape of any matter, or if painful, for the application of the opium and poultice. When it is desirable to poultice, I take care that the plaster is large enough to protect the surrounding skin, and I discontinue the poultice as early as possible. In this way, with early attention to small spots and a limited amount of poulticing, combined with ordinary care in diet, occasional aperients, and tonics, of which last I prefer bark and nitric acid, I seldom find any difficulty in preventing the successive crops of boils now so common.

"When called in at a later period, or if in spite of treatment a boil or carbuncle will have its course, I think strong nitric acid to be the best application, using it freely two or three times, removing the dead tough slough before each application, supporting the margins with the plaster, and poulticing freely."

Part xxxvii., p. 270.

Boils and Carbuncles.—Paint the whole mass of indurated tissue with at least three coats of the common pharmacopæia tincture of iodine for several nights in succession, and unless the boil has been on the point of bursting, the progress will be arrested in nearly every instance, and the hardness, swelling, and tenderness of the part will quickly subside.

* * * * *

The local use of belladonna to carbuncles or boils, and other painful cutaneous affections, will be found to afford the greatest relief to the patient.

* * * * *

The great pain arising from carbuncles is in many cases relieved with remarkable rapidity by the application of the following ointment spread upon a linen rag: Take of opium half a drachm, white ointment two ounces, and mix. This treatment is applicable to any stage of the affection. *Wile Art. "Carbuncle."*

Part xxxviii., p. 175.

BONES.

Difference between Syphilitic and Scrofulous Affections of Bone.—
[M. Ricord enumerates the following points of difference:]

Syphilitic Affections of Bone.

1. Very rare with young people.
2. Syphilitic precedents.
3. Compact texture of bones attacked.
4. Superficial part of the bone.
5. Little tendency to hyperostosis.
6. The pains which precede the development of the affection increase and become very intense, until they decrease again, and entirely disappear in the latter periods of the disease.
7. A tendency to circumscription.
8. Exostosis.
9. Tendency to ossification and eburnation, but very little to suppuration.
10. A chain of syphilitic symptoms, either concomitant or antecedent.
11. Rapid cure under appropriate treatment.

Scrofulous Affections of Bone.

1. Very frequent in youth.
2. Scrofulous precedents.
3. Spongy or cancellated texture of bones attacked.
4. Deep parts of the bone.
5. Much tendency to hyperostosis.
6. The tumefaction precedes the pain, but the latter soon increases and becomes more and more intense as the disease advances.
7. A tendency to diffusion.
8. Hyperostosis.
9. Tendency to softening, to suppuration, caries, and necrosis, and not to ossification.
10. A chain of scrofulous symptoms widely differing from those of syphilis, either concomitant or antecedent.
11. Very difficult cure, often incomplete, and sometimes impossible.

Syphilis may, however, be superadded to scrofula; we must, then, in combating any lesion, endeavor to find out to which of the two diatheses it is mostly owing, and select our therapeutic means accordingly.

Part xviii., p. 151.

Suppuration in Bone.—In every healthy inflammation the process of adhesion precedes that of suppuration, and pus when formed is consequently limited and circumscribed by lymph previously effused; but in unhealthy constitutions, the requisite power may be wanting to carry out the process of adhesion; and should suppuration then take place, the purulent fluid may permeate from cell to cell in the surrounding parts. These two processes are exemplified on the surface of the body by a common abscess and a diffuse cellular inflammation. In the cancellous structure of bone, the actions are strikingly analogous, though somewhat more tardy in their development. The products of the inflammation may be limited by the effusion of bony matter, which fills up and obliterates the surrounding cancelli; or the secretions of the part (when the adhesive process is imperfectly developed) may infiltrate the structure of the bone to an unlimited extent. We have thus a natural division of the cases of suppuration in bone into those which are circumscribed, and those which are not; into cases of abscess, properly speaking, and into those of purulent infiltration.

These two classes of cases differ in their causes, progress, and termination. The simple abscess usually originates in young and healthy persons: the infiltration of purulent matter rarely takes place without some present depressing influence, or some former cause of constitutional weakness. The simple abscess is marked in its progress by excessive pain, and may continue in much the same condition for many months and even years. Diffuse suppuration, on the other hand, may be attended with little local suffering, but very soon becomes the cause of much general excitement,

and leads to the formation of disease in other parts. The termination of circumscribed abscess is generally favorable, however long it may have lasted, provided the matter be evacuated externally; whereas purulent infiltration in bone is usually fatal.

Chronic abscesses require, moreover, to be carefully distinguished from cases of softened tubercle, with which they appear to have been confounded. M. Nélaton published the following description of encysted tubercle in the extremity of long bones: "When an encysted tubercle is developed in the extremity of a long bone, it is at first confined in the centre of the cancellous structure, not far from the articular extremity. It gradually increases, and approaches on one hand the cartilage, and on the other the circumference of the bone, external to the joint. If in the progress of its development it reaches the exterior of the bone, it escapes into the surrounding cellular tissue; an abscess is there formed, which increases and empties itself externally, leaving a fistulous communication with the interior of the bone. But if, on the contrary, it makes its way toward the articular surface, the cartilage with which it comes in contact is perforated, and the tubercular matter empties itself into the joint." M. Nélaton says that he has seen several examples of this unfavorable termination of the disease. But the cases of crude tubercle in adult bone to be found in our museums are so rare, we cannot but think that the frequency of its occurrence has been greatly exaggerated, and that M. Nélaton, and other continental writers, have included cases of softened tubercle and chronic abscess under one common description.

Chronic abscess may probably occur in any bone of the body. In the museum of the College of Surgeons there is a specimen where it had taken place in the clavicle; and Mr. Arnott has mentioned an instance of its having occurred in the femur. At King's College Hospital a case lately presented itself, where a circumscribed abscess had formed in the lower jaw, the bone around being greatly condensed and thickened. By far the majority of cases of chronic abscess, however, occur in the tibia, and almost always in the upper or lower extremity of that bone.

When an abscess is formed in bone, important changes occur in the surrounding parts. The periosteum and adjacent bone become inflamed and thickened. This is followed by the formation of new bone, both in the cancellous structure, and on the surface of the original bone. The bony matter thus secreted corresponds to the deposition of lymph around an abscess in soft parts.

This deposition may go on, as the bone in immediate contact with the pus is absorbed; so that, although the abscess is gradually making its way externally, it remains covered with the same thickness of bone as before.

Deposition of new bony matter occurs much more readily around the spongy extremities than upon the compact shafts of bone. In the former situation, it may take place to such an extent as to render it very difficult to say precisely what part of the bone was originally affected, and a trephine applied under these circumstances may fail to reach the seat of the disease.

After a circumscribed abscess is formed in bone, the parts around appear to accommodate themselves to its presence. This is accomplished, not by the fibres of the bone being pressed asunder, but by an actual absorption of the osseous substance. The intense pain experienced depends, doubtless, upon the extreme tension maintained upon the unyielding structure, and every fresh accession of pain results from a fresh secretion of fluid. The

influence of some medicines in restraining the symptoms may probably depend upon their power of promoting the absorption of the more fluid part of the abscess. Thus we find that the iodide of potassium, given in doses of three or four grains, will sometimes be followed by a temporary abatement of the pain; and it would appear from the cases recorded, that, after the first attack of pain, the symptoms may remain in abeyance for almost an unlimited period, until some accidental cause produces a fresh secretion of fluid. The cavity of the abscess then again becomes distended, and the pain of compression returns. A process analogous to the pointing of an abscess in soft parts not unfrequently takes place; the ulceration affects one point of the walls of the abscess particularly, and an opening may thus be formed, through which its contents are evacuated externally.

In other cases, the process of deposition goes on in the whole circumference of the bone as rapidly as that of absorption, and the abscess cannot then make its way externally. The compact structure of the shaft of the bone also prevents its extending in that direction; the articular surface is then the only one toward which the abscess can extend. No fresh layers of bone can here be deposited, and the fluid consequently makes its way toward the joint.

The cartilage has been observed, in such cases, to be affected in two ways: either perforated, so as to allow the matter to escape directly into the articulation, or absorbed over a large surface without suppuration. In a case of the latter kind, recorded by Sir B. Brodie, the cartilage covering the head of the tibia in some places was perfect in its structure, but it existed only in narrow stripes; in other parts it had degenerated into a substance something like condensed cellular membrane; in others, the only vestige of it was a kind of membrane, so thin, that the bone could be seen through it; and in other parts, the surface of the tibia was completely exposed, but not carious.

Part xxv., p. 187.

Simple Mode of applying Pressure in Chronic Enlargement of certain Bones, etc. — [Dr. Inman records the following case: M. C., a delicate girl, three years of age, had a swelling of the left knee-joint, which was three-quarters of an inch larger than the right, due to an enlargement of the head of the tibia and condyles of the femur.]

I directed the mother to procure a piece of thin vulcanized india-rubber cloth, which she was to shape to the knee, allowing an interval in front of about three-quarters of an inch. The edges were to be bound by a piece of thin leather, and a piece of wash-leather was to be placed as a tongue between the laced portion and the knee. Holes were to be made in the cloth behind the binding, and the whole was to be laced like ladies' stays. The elastic was to be worn during the day and night. Exercise was not prohibited, and no medicine was ordered. I saw her again in ten days. The bandage had been worn for fourteen hours daily, and taken off at night. The knee was reduced a quarter of an inch in circumference.

In ten days she called again, complaining of pain and oedema of the leg, in the evening, from pressure. On removing the elastic, whose edges now overlapped, I found the knee restored to its normal size and shape. The child could run about without pain or inconvenience. I directed the disuse of the bandage, unless the swelling should return; and told the mother that, though I could not promise that there would be no return of the complaint, I considered the child as cured.

It is unnecessary to make any long comments upon this case. The fact of a morbid deposit in bone being absorbed, or, I might almost say, a threatened white-swelling, cured in three weeks, without blisters, issues, or caustics, without confinement, or even complete rest, is sufficient to speak for itself. Of course, such a plan can only be adopted when there is no reason to believe that active inflammation or purulent deposits are present, and where there is no severe pain. *Part xxvi., p. 140.*

Pathology and Treatment of some obscure Cases of long-continued Pain in Bone.—It appears that long-continued pain in bone may arise from a variety of different pathological conditions, and that the chronic irritation, which precedes the deposit of new bone, may depend, among others, upon the following local causes: 1. Upon the formation of pus within the bone. 2. Upon the deposition there of more solid material arising from the poisons of mercury, or syphilis. 3. Upon a collection of tubercular matter in bone; or, 4. Upon the presence of a necrosed portion of cancellous structure.

Whenever there is reason to suspect that pain in a bone is kept up by the presence of some morbid or foreign matter in its interior, or by the pressure produced by a redundancy of bony deposit, it appears evident that the removal of a piece of the shell of the bone is the rational mode of treatment. An opportunity is thereby afforded at once for the escape of any confined matter, and the tension of the parts is relieved; and it appears not improbable, from the favorable effects hitherto obtained by this mode of treatment, that it may hereafter be extended to the relief of many cases of protracted and obscure affections of the osseous system.

Part xxvi., p. 141.

Pedunculated Exostosis of the Long Bones.—Prof. Syme remarks as follows: As the expression *exostosis* literally implies merely an inordinate growth of bone, it has been employed to denote a great variety of morbid conditions in which this circumstance happens to exist. The "callus" that repairs a fracture, the new osseous shell which supplies the place of a dead shaft, the *spina ventosa* or expansion caused by the accumulation of pus or other fluid, the spicular or foliated excrescences that shoot into the substance of an osteo-sarcomatous tumor, and the bony prominences of morbid growth resembling the natural processes connected with the origin and insertion of muscles, have all been included within this comprehensive title. It is to a particular form in which the last mentioned of these productions appears, that I now wish to direct attention.

[Puberty is the period of life when these simple growths are chiefly developed. Indeed, in young and growing persons, the symmetry of the bone is often lost from the processes and articulating extremities growing more rapidly than the other parts, but as a rule we may always express an opinion, that in time the proper proportions will be restored.]

The constitution of these growths is quite similar to that of the spongy extremities of the long bones, being composed of a thin, osseous lamina externally, and a more or less compact, consolidated texture within it. While enlarging, they have an incrustation of cartilage, whence they have been called by Sir A. Cooper and others—in my opinion, very improperly—the cartilaginous exostosis, since any bone in the body might with equal propriety be designated cartilaginous: and as this nomenclature is sure to occasion confusion between the truly osseous growths and those

of a fibro-cartilaginous nature, which anatomically, pathologically, and practically require to be carefully distinguished. Thus Sir A. Cooper describes, under the same title, well-marked cases of these two most dissimilar conditions, and in his lately published work, Mr. Pagot has pursued this course, with, if possible, still less regard to the diversity of the tumors thus associated together. Anatomically, they differ in constitution, which, in one case, is the simple bony texture incrustated externally, so long as it is growing, by a plate of cartilage; and, in the other, it is a fibro-cartilaginous growth inclosed within the expanded bone, or dispersed through the interstices of its honeycomb-looking structure. Pathologically, they differ in the one sort of growth being limited in its tendency to increase, and producing no inconvenience except from the peculiarity of its position, as when seated under the nail of the great toe, while the other has no bounds to its enlargement, which depends upon the fibro-cartilaginous substance, and not upon the bone. Practically, they differ in this important respect, that while the one may be removed by division of its neck or base, the other cannot be extirpated except by taking away the whole bone, or dividing it at a sound part beyond the confines of the disease. It was from not attending to these distinctions that Mr. Liston, who first drew professional attention to the exostosis of the toe, insisted upon amputation as essential for the patient's permanent relief; while due regard to them led me to practise removal of the growth alone, as sufficient for attaining the object in view—a procedure which, though for a time reprobated by Mr. Liston and his followers, has long since become the established rule of practice. On the other hand, a knowledge of the depth to which the fibro-cartilaginous growth strikes its roots into the bone affected, has put an end to those painful scenes which surgeons of the present day witnessed in their youth, when attempts were made, of course in vain, to dig out such tumors from the upper and lower jaws. By disarticulation or division of the bone, where ascertained to be sound, the patient is now effectually relieved in a few minutes, instead of being subjected to the prolonged torture of hours, without the chance of benefit to his case, and with the greatest risk of its aggravation.

Under the title of cartilaginous tumor, have been comprehended two morbid conditions of the osseous system, of the most different natures, which require to be distinguished for the establishment of their proper treatment. In regard to the osseous growths, associated with malignant tumors, serous cysts, and abscesses—as the new-formed bone is always perfectly sound in its texture, and owes its production to the influence of another morbid condition, I think the disease in such cases should be named, not from the exostosis, but from the cause which has occasioned it, whether this may be a growth, a cyst, or an abscess. The expression exostosis would thus be restricted to its proper sense of denoting the change effected in the bone itself, and would only require to be further divided into the solid, hollow, and spicular forms. Attention would thus be directed to the disease essentially requiring remedy, and not to an accidental concomitant.

I may now proceed to the special object of this communication, which is to explain a circumstance in the constitution of the simple exostosis when it proceeds from the long bones of the extremities, which may be of considerable consequence in regard to both its diagnosis and treatment. The most frequent situations of this growth are the inner side of the thigh

bone a little above the condyle, and the neck of the humerus just below the tuberosities into which the scapular muscles are inserted. It has a neck from half an inch to an inch in length, which is usually placed obliquely in relation to the shaft, and beyond this expands into an irregularly rounded form, nodulated on the surface, which is covered by a thin incrustation of cartilage, that presents a shining pearly lustre, and has no communication with the surrounding parts.

About five-and-twenty years ago I was consulted by a gentleman residing in this city, on account of a very large exostosis, in the usual situation, on the inner side of the thigh. He was a tall, strong, active man, and, in consequence of over-exertion, was suffering from swelling, redness, and pain of the limb at the seat of enlargement. I advised soothing measures, and expressed the opinion that an operation would not be requisite if he abstained from undue exertion in future. I frequently afterward saw the gentleman, apparently in the enjoyment of perfect health, and had no reason to entertain any doubt as to his being so for more than twenty years, when Dr. Handyside asked me to see him, on account of an alarming change that had taken place in the condition of the tumor. The thigh was considerably swelled and painful, especially when pressure was applied on the seat of the exostosis, which could not be felt distinctly in consequence of the thickening around it that had taken place, together with the effusion of some fluid that was detected by a deep fluctuation. In explanation of this circumstance, it was stated that the patient had lately been leading a life of much greater exertion, particularly in walking, than he was previously wont to do, and Dr. Handyside enjoined rest, and, after a time, applied a blister. We thought that there was something seriously wrong, and were not free from the apprehension of cerebriform degeneration, but resolved to try the further effect of rest, with gentle pressure. In the course of a few weeks the swelling and tenderness disappeared, the fluctuation could no longer be perceived, and the exostosis was felt no less distinctly defined than in former times.

I felt quite at a loss to account for this case, until the following one completely explained it: Dr. Duncan asked me to take under my charge, in the hospital, a female servant who had received a blow, which was supposed to have detached an exostosis from its usual seat of attachment, above the knee, on the inner side of the thigh bone. As the limb was very much swelled and extremely painful, I feared that delay might lead to suppuration, and therefore cut freely down to the exostosis; but in doing so was surprised to find a quantity of serous fluid, tinged with blood, lying between it and the surface immediately surrounding it. The whole truth at once appeared, and I no longer felt any difficulty in accounting for the smooth shining surface presented by growths of the kind in question, or for the fluctuation which, in the former case, had so much perplexed Dr. Handyside and myself. It was plain that a synovial membrane surrounded the exostosis, and was reflected from its neck, so as to afford a double covering, just as on the joints—the half of one being thus represented by the osseous growth, its crust of cartilage, and investing membrane.

I hope that the condition of what may be called the pedunculated exostosis, thus fully ascertained, may be of service, not only in its diagnosis, but also with reference to the means of remedy, since the complete insulation from surrounding textures, except at the comparatively small point

of its attachment to the bone, affords great encouragement to attempt removal, even under circumstances apparently much opposed to success. Thus, in the case of a young lady I saw lately with Dr. Simpson, there was an exostosis at the neck of the humerus, which pressed upon the axillary nerves, so as to occasion great and increasing distress; and, from this position, had been deemed beyond the reach of removal. But, having ascertained that the point of attachment was at the posterior surface of the bone, I made an incision between the deltoid and triceps, exposed the neck, detached it by cutting pliers, and extracted the exostosis, with hardly any bleeding, and no injury to the neighboring parts.

Part xxix., p. 161.

Deformed Bones.—In cases of deformity of the bones, whether from accident or disease, perform what is called subcutaneous osteotomy, which is a much less dangerous operation than resection of bone exposed by a large external wound. Make an incision rectangular with the longitudinal axis of the bone, dividing the integuments and periosteum—apply a fluted chisel-drill (two lines in breadth, attached to a centre-bit) in the centre of the incision, and perforate the bone (the tibia, for example,) transversely from within outward. The cessation of resistance safely denotes the accomplishment of the perforation—a narrow saw is now introduced into the aperture drilled through the bone, and the greater part of the bone divided. The bone is directly straightened by fracture of the remainder. The normal position need not be restored at once, but can be accomplished during the consolidation of the bone.

Part xxxi., p. 126.

Diseases of the Bones.—[In this paper Mr. Bishop enters on the subject of *exostosis*, such tumors as are situated immediately under the periosteum, and are at first disconnected with the bone, but nevertheless, after having been formed for some time, become sooner or later firmly united with the contiguous bone. They are liable to form on the internal table of the bones of the head.]

A tumor of this kind presents to the eye the appearance, and to the touch the form, of a nodule, with an abrupt margin, and is frequently separated at its base from the subjacent bone, by a furrow of variable thickness; and sometimes there is a deep fissure between the nodule and the bone lying beneath. The density of these compact nodules is very great, and in this state the disease is termed the ivory exostosis. These ivory tumors are of greater density and specific gravity than the normal bone with which they are associated, unless they happen to be connected with bone already in a state of induration. They are always composed of laminae, and seem never to be intermixed with spongy tissue. The density of the tumor is owing to the greater number of laminae contained in a given space, when compared with the number of laminae found in the same space in normal bone. The Haversian canals are small and few in number, but a well-defined lamellar system is found surrounding them. The bone corpuscles are irregularly scattered in the substance of the tumor, and in some places they are clustered together, while in other parts larger tracts are found entirely destitute of them. The color of these exostoses is of a yellow-white, and they are of a lighter hue than the bone to which they are attached.

Rokitansky appears opposed to the hypothesis that the origin of these

tumors has any relation to syphilis, and he believes the cause of their appearance to be entirely unknown. When the exostoses are of a spongy texture, they are connected with a rarefaction or expansion of the spongy bones, termed by the German pathologists *osteoporosis*. They present many varieties in their structure, and may arise either from the spongy or from the laminated structure, or from both together; they are then compounded of an internal spongy, and an external laminated layer of the compact tissue. These mixed osseous tumors are not infrequently found near the joints, at the head of the tibia, or on the shin, and on any of the other long bones of the skeleton. In the skull, the disease is accompanied with an expansion of the diploe, in which case there may be an exostosis on both the external and internal tables corresponding in situation with each other. In the spongy forms of exostosis, the structure may remain permanent after its development; but more commonly new matter is formed in the interior, and the structure of the bone is more or less condensed; but this altered structure is often succeeded by the bone being again rarefied, and thus the growth of the spongy exostosis outward may be affected, and may increase to a considerable size. When this disease affects the spongy bones of the face, it has been known to produce the most hideous appearance. Some examples of these cases are to be seen in the Hunterian Museum. When the exostoses have acquired a certain magnitude, they usually continue through life unchanged. The ivory texture of the excrescence, in this disease, sometimes diminishes in size by condensation, or it may become necrosed, and thrown off.

The spongy exostoses sometimes degenerate into caries, and in this way disappear. These appear to be the processes by which the system may be spontaneously released from the osseous growths of exostoses. Independently of exostosis, the bones, during inflammation, exude a fluid which ossifies, and forms a layer on their compact surface; this substance has received the name of *osteophyte*. At the commencement of this process, the exudation is soft and gelatinous; it afterward becomes tough and elastic, resembling cartilage, and in the end it ossifies. It appears that this exudation is associated with nearly all inflammatory conditions, whether of abscess or necrosis of the bones. There are many variations of form assumed by these osteophytes, as well as differences in structure.

They sometimes appear to be composed of "delicate fibrils and lamellae, which are fixed at acute angles on the surface of the bone, and give it the appearance of velvet, or felt with a very fine nap." Though these osteophytes are at first in contact with the bone, yet they may be easily raised from it in large pieces, and although for some time separated by a layer of cellular substance, they become fixed to the bone when this membrane disappears.

The exudations which terminate in osteophytes, sometimes form plates, and often ankylose some of the vertebrae, by the ossification of the anterior common ligament. They occur also in the inner table of the skull, and, indeed, wherever inflammatory processes are going on in the bones.

Osteophytes have been known, in a few cases, to cover large portions, or nearly the whole of the skeleton; they are sometimes associated with atrophy, and at others with hypertrophy, of the bones. Although we

generally find the exudations accompanied with an inflammatory condition of the bones and periosteum, the precise condition of the system that gives rise to the inflammation and exudation, is not yet determined. In the imperfect union of fracture, these plates then constitute the union of the ends of the bone.

The bones of the skeleton are likewise liable to anomalies in number, size, and form. The absence or addition to the number is not very common, but is coincident with conditions of the system in a state of perfect health, and not referable to any pathological conditions: it is not, therefore, my purpose to give any detail of cases of variations of number. With regard to variations in size depending on pathological states of the bones, the case is quite different, and deserves a few remarks. In hypertrophy of the bones, they may increase in size by the addition of new osseous matter deposited on their surface beneath the periosteum, without any change taking place in their density or specific gravity: the size of the medullary canal remains the same, but the compact substance acquires a considerable augmentation of thickness. When the increase of substance takes place in the interior of the bone proceeding from the Haversian canals, and involving the whole of the medullary system, the bone becomes more dense, both in the compact and cancellous tissues. In the latter, the walls of the cells increase in thickness, and the medullary cavity diminishes in size; the diploë disappears, and the whole bone becomes indurate. When the hypertrophy takes place both internally and externally, the bulk and density of the bone are both increased. The increase of the bones, both internally and externally, is preceded by the deposition of a superabundance of cartilaginous matter, in which the salts of lime are deposited, as in normal bone.

When the disease attacks the bones of the skull, or when it affects considerable portions of the skeleton, it becomes a serious disorder. It is a remarkable circumstance, that when the bones of the skull become hypertrophied, those of the face often diminish, so that there are actions opposite in their effects—namely, hypertrophy and atrophy, going on in the system at the same time.

The conditions of the system that give rise to these changes in the bone are not yet determined, nor do the bones themselves give any premonitory signs of the advent of the disease. The surface of the bone continues smooth, and the periosteum natural, even when the bone has acquired the compactness of ivory. In other cases, the increase in the volume of the bone is preceded by an inflammatory condition. The seat of the inflammation may be either the periosteum and the compact tissue, or the medullary membrane. When the external surface is affected, an exudation takes place on the surface of the bone, which becomes ossified into laminae: this forms a layer, which is sometimes separated from the surface of the bone by a layer of spongy tissue. When the inflammatory process has its seat in the medullary membrane, it leads to increased density either of the compact or of the spongy tissue, or of both these structures. It may be easily imagined that these organic changes cannot take place without affecting the texture of the diseased bone; and it is found accordingly, that the substance of the bone becomes hypertrophied in consequence of the expansion and infiltration of the tissue connecting the capillaries of the medullary canals and cells. The result of these organic changes is a thickening at the affected portions, the other sections of the bone remain-

ing free, so that the surface often presents a rough and uneven appearance. The inflammatory state of the bones under consideration is frequently experienced by persons laboring under a rheumatic, syphilitic, or gouty constitution, and the treatment must depend on the nature of the causes that are associated in the production of the disease; the local treatment is that common to other organs affected with chronic inflammation.

The opposite state to that of hypertrophy, is atrophy of the bones. Whatever causes lead to the undue nutrition of bone, tend at the same time to diminish its volume. There are, consequently, many states of the system which may lead to atrophy, such as indifferent diet, want of action, exhausting diseases, palsies, fractures, ankylosis, and, indeed, anything which tends to impede the flow of blood to the bones, are all accompanied with atrophy. From the nature of the various causes just mentioned, any of the bones of the skeleton may be affected. In many cases, the bones diminish both in length and thickness, and the medullary canal becomes contracted; this condition of the bone is termed *concentric atrophy*.

Independently of special causes, the bones of aged persons often become atrophied; they are then brittle, and break with a comparatively slight force. It appears that atrophy always begins in the medullary canals and in the diploetic structure, the cells of which enlarge, and the walls and lamellæ of the cancellous structure become attenuated, and finally disappear. The compact tissue becomes changed, and resembles the spongy diploetic structure; and the outer layer only remains unaffected, but almost as thin as paper. As the atrophy of the spongy substance advances, the external layer only remains, and incloses a cavity, with mere traces of spongy tissue at its periphery, or a soft substance with large cells. When the spongy substance is entirely removed, the thin external walls of the bones approach each other, and form a single plate. When the cavity within the bone is enlarged, it is called by Mr. Curling *ex-centric atrophy*.

The con-centric form of atrophy occurs in the larger medullary canals, the ex-centric in the bones of the pelvis, ribs, and vertebrae. It will be easily imagined, that when such great organic changes take place in the bones, their physical characters alter in proportion; and accordingly, the bones thus affected become flexible, and crack when they are bent. As the loss of the internal portion of the bone proceeds, the external portion becomes diminished, and hence the skeleton, in *senile atrophy*, together with the whole weight of the body, is less than in the normal state. The volume of the bones may be also diminished by continual pressure, such as that produced by tumors and aneurisms; but to these purely mechanical causes I do not wish to engage your attention.

Having now given a description of the nature and growth of osseous tumors, I shall occupy a few minutes with some very brief remarks on the nature and diagnosis of the soft tumors affecting the bones. Perhaps there is no subject in which the microscope has been of greater utility to the practical surgeon, than in determining the structure of the soft tumors of the osseous system. Up to a very recent period, tumors of the bones of the most heterogeneous and diversified character have been assembled together, and no distinction has been made between those of the mildest and those of the most malignant tendency. Thus, the older writers grouped together, under the term "*osteo-sarcoma*," the cartilaginous and osseous, the osteoid, the myeloid, and the enchondromatous tumors, and

confounded these non-malignant with the scirrhus, medullary, and alveolar tumors. Under these circumstances, we cannot wonder that much discussion should arise amongst surgeons on the propriety of, and the varied success resulting from, the removal of these mixed forms of tumors.

When we look into authors on osteo-sarcoma, we find that they had no very precise idea of the nature of the tumors comprised under this term. Some wished to restrict the term to those which are decidedly scirrhus, while others describe them to be of a cartilaginous texture, and none seem to have satisfactorily determined whether they are or are not wholly malignant. With such a state of confusion and complication, we need not be surprised that some operations have been attended with complete success, while in other cases the diseases have returned and destroyed the patient. To give an idea of the complete difference in the views entertained by surgeons on this subject, it is only necessary to refer to one or two of those who have confounded together the malignant tumors with those of the non-malignant character.

Thus, according to Callisen, osteo-sarcoma is a disease by which the texture of the bones is converted into a lardaceous substance, having a tendency to carcinoma. Boyer considers it a disease analogous to cancer. Dr. Cumming, of Glasgow, considers that though all varieties of osteo-sarcomatous tumors are highly formidable, yet he says "they are not all really cancerous." Mr. Mayo observed of these tumors, that they have not "much malignity;" so that if all the portion of the bone involved, with part of the adjacent sound bone, be removed by amputation, the complaint seldom reappears, either in the part, or in another bone. It would be an almost endless task to enumerate the different opinions, with the various results, of these tumors; but we see how little dependence can be placed on the results respecting the cases that have been detailed, unless we could be secure of the real nature of the tumor removed. But the diagnosis of the character of the tumor is in some cases by no means easily made, and I have occasionally been in consultation with the most distinguished surgeons of the metropolis without arriving at anything like a satisfactory result.

The diagnosis of the nature of many tumors connected with the bones is one of the problems in surgery most difficult to solve; the data in many cases are not sufficient for the purpose. The hereditary tendency to diseases of an organic type, the aspect of the patient, the situation of the tumor, its character to the touch, and the history of its formation, are all circumstances to aid in the research; but all these are often insufficient to enable the surgeon to arrive at more than a hypothetical conclusion. An example will suffice to show the truth of these remarks.

A few years ago I was solicited by a gentleman to remove a tumor situated at the back of the thigh. On examination, I found it was deep-seated, soft to the touch, and apparently movable on the bone; it was of a considerable size, and had only been recently detected by the patient. Having some suspicion of its character, I advised his having another opinion before its removal, and Mr. Guthrie was consulted; but that gentleman being of the same opinion as myself—namely, that it presented a formidable aspect, it was agreed to take the opinion of the late Sir Astley Cooper. In this consultation, Sir Astley stated, that although he was of opinion it was very likely to turn out malignant, yet that its removal would give the

patient a greater chance of a prolonged life. However, considerable alarm having been excited in the minds of the patient and his family by these consultations, he was advised to take the opinion of Mr. Lawrence, and subsequently that of the late Mr. Earle. The result of their respective opinions was, that it was a tumor of uncertain character, but all agreed of the propriety of its removal.

At length the family decided that Mr. Earle should be selected to perform the operation. On cutting down on the tumor, it was found to be a medullary cancer connected with the bone, with ramifications so extensive that its complete removal could not be accomplished. The consequence was that the wound did not heal, and the patient sunk from exhaustion at the end of about three months. In this case it will be observed some of the best surgeons in London were consulted, notwithstanding which nothing but an uncertain knowledge could be formed of the character and connections of the tumor, and it was, as the result proved, a case which required either amputation at the hip-joint, or to be left undisturbed.

In order to assist us in forming a correct diagnosis of the nature of tumors, it has been suggested, and attempts have been made, to ascertain their character by means of a grooved or hooked probe, but with what success this plan has been attended I am not prepared to state; and it seems to hold out a feasible prospect of enabling us to form a better opinion of such cases before operating for their removal. It is the opinion of many surgeons that malignant diseases in the bones are not so liable to return after operation, as those of the soft parts; but as these opinions were given when the real nature of tumors was less understood, it will require farther investigation to determine this question. Myeloid and enchondromatous tumors were, until very lately, considered malignant; and this may have given rise to many of the opinions formed of the curability of the patient suffering under malignant tumors of the bones by means of their removal.

Part xxxi., p. 128.

Case of Malignant Disease of the Ilium.—[The following interesting case gave rise to some valuable clinical remarks by Mr. Fergusson.]

Present condition: The patient is in a state of great debility, which has been slowly coming on for the last two years. Bowels much confined, appetite good; sleeps well; pulse 90 and weak. There is a tumor situated on the posterior part of the left dorsum ilii, above and slightly over the great sacro-sciatic foramen. The crest of the ilium can be felt distinctly above it. The dimensions are, five inches in one direction, and four in the opposite; its circumference is nearly circular, and it stands out from the surface of the body about an inch. When the fingers are placed upon the tumor, it may be distinctly felt to pulsate, each pulsation being synchronous with one at the wrist. If the stethoscope be applied to it, a blowing sound in successive puffs is plainly audible. It is not tender to the touch. The skin over it is freely movable, and not discolored. A bladder filled with ice is kept for two or three consecutive hours over the tumor, till the skin becomes quite numbed. This has a very decided effect on the tumor, causing it to become hard, with the pulsation diminished.

From the history, I think you would naturally suppose the case to be one of aneurism of the gluteal artery; and for such it was taken by the surgeons who sent the patient to me from Birmingham; indeed, so certain were they, that it was considered a proper instance for ligature of the

internal iliac artery. I have never seen an aneurism of the gluteal artery, and I believe spontaneous aneurism of that artery to be extremely rare.

After the admittance of the patient into the hospital, I made a careful examination; and this is what struck me,—here was a man lying in bed, with a large pulsating tumor, resembling in many ways an ordinary aneurism; pallid, thin in the limbs, hardly able to walk, and experiencing great pain in and about the region of the tumor. Now, contrast this with a case of spontaneous aneurism of the popliteal or other large artery of the extremities, but especially with one situated within one of the large cavities. The patient laboring under the disease is much annoyed at being kept to his bed; he imagines that little is the matter with him, for he may be capable of undergoing great fatigue, perchance walking great distances to seek opinions regarding his malady. In fact, it is not a feature in ordinary aneurismal disease for the patient to be out of health. I mentioned that great pain was very early complained of in the tumor, whereas it is rare for those laboring under an aneurism of a large artery to make such a complaint at so early a period.

Regarding the character of the tumor: when I made pressure in the site of the gluteal artery, as it leaves the sciatic notch, and turns up on the outside of the pelvis, all pulsation in the tumor ceased, which fact certainly seemed very strong in favor of the supposition of a gluteal aneurism, and an indication which, taken by itself, was not unlikely greatly to bias the surgeon in his diagnosis; but I confess this had little or no weight with me, for I have met with malignant tumors of bone in various parts of the body possessing great pulsation, which could be arrested by pressure on the main artery supposed to lead to the disease.

The size of the tumor and its situation were very much against it being considered an aneurism of any one branch of the gluteal; indeed I could not fancy such constitutional disturbance to be dependent upon such a source. It is seldom that the surgeon is consulted about an aneurism at so early a period as this case came under notice; but, if he should meet with such a disease, at what is termed its first stage, it is generally possible to empty the blood out of the tumor; but, as you saw during my visits to the patient, I frequently tried so to do, but was always unsuccessful. In the earlier stage of the disease, the crest of the ilium could be distinctly traced above the upper border of the tumor; but, after a short time, the part became entirely involved in the disease. There was one feature in which common-place anatomy greatly assisted me. I noticed that the insertions of the long extensor muscles of the back, as the disease increased in its dimensions, became elevated above the surface of the tumor; whereas, if the swelling had been an ordinary aneurism of the gluteal artery, they would doubtless have been beneath. These were, then, the principal points from which I framed my diagnosis, in the early stage of the disease; and I came then to the conclusion, that the man was not the subject of a gluteal aneurism, as was at first supposed, but that he was laboring under malignant disease of the ilium, and that the tumor was what is commonly called a pulsating tumor of bone, possessing more vascularity than was usual in such cases; and hence the well-marked pulsation.

This so-called aneurism of bone is, in my opinion, nothing more than aneurism by anastomosis in hard structure, somewhat modified in its condition and symptoms, and which might, in many instances, be called medullary sarcoma, or fungus hematodes. There is generally a very large

expansion of bone, seeming as if the bone itself had been blown up, the interior of which may contain a quantity of medullary or melanotic matter, or resemble a sarcomatous mass, containing cysts with fluid blood, and possessing great vascularity. Though thoroughly satisfied in my own mind as to the nature of the disease, I was anxious, nevertheless, to avail myself of the advantage of other opinions; and, accordingly, after requesting the opinions of my colleagues, I invited surgeons of the highest eminence in London to see the case, the majority coming to the same conclusion that I have already expressed.

It was quite evident that an operation could in no way benefit the patient, and that the only treatment that could avail was rest and kind attention to his wants. He daily grew weaker, until at length, becoming delirious, he ultimately died from pure exhaustion. Here let me impress upon you how important it is to avoid all surgical interference in those instances in which such a proceeding is unlikely in any way to better the patient, but which, on the other hand, is calculated to bring disaster on the surgeon, and the worst possible result to the sufferer. This disease so nearly resembles glutel aneurism, that surgeons of experience have actually mistaken its true nature, and treated the case as if it really had been an ordinary aneurism.

Some time before the patient's death, while paying my visit one day, I found that the left thigh-bone had spontaneously broken just below the trochanter, no cause being assigned for the accident. Now, in malignant affections, or certain forms of cancer, it is not by any means uncommon for bones to become friable, and break with the least possible exertion. This was, therefore, another very conclusive proof in support of the malignant nature of the disease.

These were the principal points of interest in this remarkable case; and the *post-mortem* examination proved the correctness of the leading opinions that had been formed during life. Most of you saw that examination; but I will briefly detail the morbid appearances which were presented. When the body was put on the table, you saw the extreme emaciation to which the patient had been reduced by the malignant tendency of the disease. On reflecting the skin from the left buttock, and dissecting back the glutens maximus, which was greatly wasted, a large tumor was found, reaching from the sciatic notch to the brim of the pelvis—in fact, covering the whole of the haunch bone, and resembling more the substance of brain than any I remember to have seen. The tumor, I think, might with propriety be called by half a dozen different names, each being equally applicable, as medullary sarcoma, encephaloid disease, soft cancer, etc.

The disease had evidently commenced in the cancellated structure of the ilium, and found its way into the cavity of the pelvis, as well as outwardly. That part projecting into the pelvis had elevated the iliac vessels, and put upon the stretch the large nerves of the sacral plexus, which fully accounted for the constant pain complained of in the thigh, extending to the foot. That portion of the ilium in which the disease commenced was entirely destroyed, the free margin of the bones being left rugged and bare.

The glutel artery, much enlarged, could be traced, shortly after leaving the sciatic notch, winding over the lower part of the tumor, and distributing large branches which ramified freely over the surface, and fully explained the reason of the well-marked pulsation during life. The large

sacro-sciatic nerve was pressed upon by the lower part of the tumor, which doubtless caused the excessive and frequent pain to the patient. The disease had extended to the left side of the two lower lumbar vertebrae, sacrum, crest of the ilium, and upper part of the femur. The remaining bones of the body were not found similarly affected, but the kidneys and lungs presented well-marked specimens of cancerous deposits.

Part xxxi., p. 133.

Pulsating Tumors of Bone.—Vide Art. "Tumors."

BRAIN.

Extract of Conium.—Recommended by Mr. Judd as likely to prove a valuable remedy in the treatment of three very fatal diseases for which we possess no specific, viz.: *hypertrophy of the heart, phrenitis, and inflammation of the medulla spinalis.* "The latter disease is one that, like Atropos in the dark, cuts the thread of life in many cases wherein the cause of death (the theca not being opened) is never discovered. In the treatment of such disease, after depletion, I should recommend that small doses of the extract of conium, without waiting for the action of purgatives, be steadily repeated every two hours, until the action of the remedy is manifested in the system, or mitigation of the symptoms ensue. In hypertrophy of the heart, the remedy should be given rather more cautiously; and by properly-graduated doses, I imagine we might regulate the hurried and forcible contractions of that viscus, and bring its action almost to nature's standard. Lastly, habitual costiveness, and want of secretion in the bowels, may often be remedied by two or three grains of extractum conii, with as much pilula hydrargyri given at bed-time; this will be slowly followed by regular evacuations. The above combination of drugs acts particularly upon the rectum; and, when the dose is too often repeated, produces in some, a sort of chronic dysentery. I throw out these hints to the profession after having witnessed the power of conium in reducing the action of the heart, to exsanguine the brain and medulla; and may safely assert, if physiological experiments teach us anything as to the nature of remedies, that then is conium a valuable auxiliary in these diseases."

Part i., p. 50.

Diseases of the Brain dependent on Diseases of the Heart.—Dr. Law brings before the profession his views of those diseases of the brain which are chiefly owing, not, as is generally supposed, to the excess of blood in the brain (which excess may arise either from too great a determination to it, or from a congested state of it, owing to obstruction of the blood in the lungs or other parts, from diseases of the heart), but to the *deficient supply* of it, arising from diseases either of the sigmoid or mitral valves. He affirms that if there be obstruction to the flow of blood before the arteries going to the brain are given off, that disease of that organ will not be owing to a fullness of blood in it, but to a deficiency: but on the other hand, if obstruction exist beyond the origin of the cerebral arteries, then the regurgitation of the arterial blood may very probably be toward the brain.

Recommended, when called to a case of diseased brain, accompanied by hemiplegia, or symptoms which would at first sight indicate congestive or inflammatory action, to ascertain if these symptoms may not be owing to disease of the heart or valves; and if we suspect that there is disease of the aortic valves, causing hypertrophy of the left ventricle, and preventing the blood reaching the brain with sufficient ease; or if we suspect either a too open or a too contracted state of the mitral valves, causing in the former case a regurgitation of blood from the ventricle, and in the latter case a difficulty in its course into the ventricle from the auricle—we must be on our guard not to deplete but to stimulate and employ a tonic mode of treatment. Dr. Law says: We selected our tonics from among chalybeates with which we associated, but very sparingly, digitalis. The stimulants we employed were camphor, ammonia, infusum arnicae, our hospital formula of cardiac mixture, composed of camphor mixture, carbonate of ammonia, and Hoffman's anodyne, etc., etc. We combined James' powder (as recommended by Dr. Cheyne in cerebral affections), with carbonate of ammonia. But the combination which seemed to us especially useful in these cases was that of James' powder, and extract of nut-vomica; the former ingredient being determining to the surface, producing an equalization of the circulation, while the latter stimulated the heart, as a muscular organ.

Part I., p. 67.

Purgatives in Inflammation of the Brain and its Membranes.—Bleeding and the application of cold to the head are well known and valued in inflammation of the brain and its membranes. The use of strong and continued purgatives is perhaps as well known but not so regularly adopted.

Dr. Watson observes: There is a great tendency to obstinate constipation in most cases; and this must be overcome, and free and frequent evacuations from the bowels obtained: five grains of calomel and fifteen of jalap should be followed in three or four hours by a strong black dose; and after that I should give, in such cases, three or four grains of calomel every four hours, and repeat the black dose at least every morning, until the symptoms gave way. If the mercury thus exhibited affects the gums, so much the better; but we must not, in this disease, combine it with opium, to prevent its passing off by the bowels. Dr. Abercrombie uses this strong language in reference to the value of purgative medicines in acute inflammation of the brain. "In all forms of the disease active purging appears to be the remedy from which we find the most satisfactory results; and although blood-letting is never to be neglected in the earlier stages of the disease, my own experience is that more recoveries from head affections of the most alarming aspect take place under the use of very strong purging than under any other mode of treatment. In most of these cases, indeed, full and repeated bleeding had been previously employed, but without any apparent effect in arresting the symptoms." He has found the croton oil the most convenient medicine for this purpose.

Part III., p. 59.

Aphorisms of Practical Surgery.—Hemorrhage from the ear, accompanied with coma (consequent upon severe injuries), almost invariably indicate fracture of the base of the skull.

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Generally in affections of the brain, the effects of purgatives on the bowels are much less powerful than usual.

Five or six grains of tartar emetic and several ounces of epsom salts will often not produce either vomiting or purging. In these cases the oleaginous purgatives, as castor oil, croton oil, etc., succeed better.

Part iii., p. 115.

Concussion of the Brain.—Bransby Cooper observes: When one or both pupils remain contracted, I am induced, from my experience, to consider this as an unfavorable symptom, characterizing lesion of the brain. In those cases in which I have observed contraction of one pupil, and have had an opportunity of making a post-mortem examination, I have invariably found injury of the brain on the side opposite to that of the contracted pupil. The same violence which produces concussion, may cause fracture of the base of the skull; and although the constitutional treatment employed may subdue the symptoms of concussion, during the progress of reparation effusion may take place, and evidence of compression supervene. Such a complicated injury, however, is generally denoted by bleeding from the ear at the time of the accident; and I have known a discharge of serum from the external meatus continue for many days after the accident; and yet these cases ultimately did well. Even when this discharge is profuse, it is to be regarded as a favorable symptom, and therefore should not be checked by astringents. The case alluded to was treated successfully, by general and local bleeding and calomel.

Part v., p. 128.

Cerebral Lesion—State of the Iris.—In the examination of cases of injury to the brain, it is considered extremely important to enter minutely into all those signs which indicate the extent and nature of the injury.

First, the mental condition; next, the state of the pupils—the iris is placed before that expanded surface of the optic nerve, the retina, as an intelligent curtain to guard it from injury. The vital contrivances by which it acts, and by which its action is directed, are so beautifully perfect that the extent of the opening of the curtain is indicative of the state of the nervous apparatus it is destined to protect, by preventing such an amount of light impinging upon it as would be liable to injure it. In diseases of the globe of the eye, the dilated pupil indicates more or less pressure on the retina by some cause in the globe itself, such as a permanently turgid choroid, etc. But if with a healthy eye, but in connection with a blow on the head, we find a dilated pupil, then we have the sign of some pressure or injury to the nerve in its course within the skull, or the ganglia in which it terminates. The dilated pupil, then, indicates very serious injury to the optic nerve, or the nervous centres with which it is connected, though it may happen, as in the case of very severe concussion, the injury is remediable. The contracted pupil, on the contrary, indicates an irritability of the nervous instruments, an undue excitement of their natural function—not an obliteration of it. You will sometimes see, in the case of injury to the brain, dilatation of one pupil and contraction of the other; where this is the case, you will find the most severe injury of the brain on the side opposite the dilated pupil.

Part viii., p. 73.

Powerful Counter-irritation, especially the Long Issue on the Calvarium.—Dr. Wallis received the first hint on this subject from Mr. Richard Smith, the present senior surgeon of the Bristol Infirmary, who, in many cases of severe injury of the head, is accustomed to make an incision through the scalp, whether or not there be symptoms of fracture or depression;

and this he does for two reasons, viz., to cause a local loss of blood, and to produce an advantageous counter-irritation. Dr. Wallis has used the same means in a variety of cases of organic affections of the brain, both chronic and acute; in paralysis, impending effusions, convulsions, erysipelas of the head and membranes of the brain, in fever in the very advanced stages, etc. He says that "its effects are more permanent and its disadvantages are fewer than those of any other remedy now in use." It is not, however, to be used in the first onset of disease, but when all the ordinary means have been fairly tried, and have failed to produce relief. In acute diseases, the greatest discrimination will be required to make use of the remedy at the proper time; for if, in serous effusions, for example it be delayed till the ventricles are filled with fluid and pressure has commenced, it rarely happens that absorption can be promoted sufficiently to effect a cure.

The circumstances which are necessary to be attended to in making the longitudinal incision or issue on the calvarium are these: Let the head be shaved entirely, and have the patient brought near the right side of the bed; raise the head by a hard pillow, and put a towel round his neck to receive the blood; let an assistant keep the head steady; at the same time draw the scalp downward in all directions, so as to strain the calvarium as much as possible; the scalp will divide with so much more ease. In this your own left hand will materially assist, by placing it at the upper and back part of the head, commencing the incision between your thumb and fore-finger as far back as the lambdoidal suture; press the scalpel sufficiently down so as to *divide the scalp entirely through at once*; carry on the incision directly along the sagittal suture as far as the hair grows on the scalp, and which will cover the cicatrix after the issue is healed up. The length of the incision thus made will be in the adult about seven or eight inches; take care that the scalp be divided entirely and perfectly through, so that the edges of the incision will separate so far as to enable you to introduce a dossil of lint, rolled up hard, as thick as two fingers, and which should be well soaked in spirits of turpentine; this answers the double purpose of increasing the effect of the incision, and makes suppuration come on earlier, and will usually assist in stopping a further loss of blood. The arteries very soon retract and cease to bleed; there is seldom more than six or eight ounces of blood lost, and this quantity may be very readily curtailed if it be desirable to do so, by applying the *actual cautery* for an instant to the arteries. By means of poultices, spirits of turpentine, blister ointment, and other irritants, suppuration may be maintained as in any other issue. In a few days, a double row of peas, seventy or eighty, strung together, may be used to prevent granulations filling up the issue. The repeated use of caustic may be necessary to effect this. *Part viii., p. 122.*

Disease of the Brain following the Application of a Ligature to the Carotid Artery.—This patient was a young man, twenty-eight years of age; he was admitted to St. Bartholomew's Hospital, April 9, 1845. Whilst smoking a pipe, a few hours previous to admission, he stumbled against a door, and drove the stem of the pipe into the tongue, a little anterior to the left tonsil. The bleeding was trifling; no foreign body could be found in the wound, but the parts were much swollen, which for five days increased so as to interfere with deglutition and respiration. On the 16th, hemorrhage took place to the amount of twenty-four ounces;

it was arrested by pressure, and Mr. Vincent proceeded to tie the carotid artery.

It was observed during the operation that the patient made violent efforts with his right side, but that he never moved the left extremities. During the night the left extremities were frequently convulsed. His pulse, which had been 132, sunk to 96. During the next two days, the twitchings of the right side and paralysis of the left side continued. About midnight of the 18th, whilst coughing, about an ounce of arterial blood flowed through the nose and mouth, and from the wound in the neck. He was sensible. On the 21st, a fit of coughing, with hemorrhage, to the extent of two or three ounces, from his nose and mouth, terminated his existence.

On examining the brain, the convolutions on the right side were flattened and softened, and in its substance there were cavities filled with ash-colored effusion, with shreds of a greenish hue.

Mr. Teale, in his "Retrospective Address," mentions two instances in which hemiplegia followed the tying of the carotids. The one occurred to M. Sedillot, the other to Dr. Fairfax; in the former the patient became paralyzed on the left side, and died in nine days; a *post-mortem* examination showed that the right side of the brain had been deprived of its due supply of blood. In the latter, the right side was paralyzed, and death took place on the fifth day.

Part xiii., p. 221.

Hypertrophy of the Brain in Children.—Let the child's head rest upon a horse-hair cushion, with a hole cut out to receive the occiput, and let it wear a thin linen cap, changed as often as the perspiration demands. Do not use counter-irritation to infants; but older children may have tartar-emetic ointment rubbed into the back of the neck. Leech when cerebral congestion requires it; but tonics are rather indicated, as extract of bark, vinum ferri, syrup of iodide of iron; or where there is marked tendency to rickets, cod-liver oil (a drachm twice a-day for a child three years old). Sponge the child with salt and water, or sea water, or immerse in a tan-bath made by boiling three handfuls of bruised oak bark tied up in a linen bag, in three quarts of water, for half an hour, and adding the decoction to the water of the child's bath. Get a healthy wet nurse; and, after weaning, give milk diet with an egg once or twice a day, and a little veal-broth or beef tea.

Part xvi., p. 77.

Application of Cold in active Congestion of the Brain in Children.—We sometimes wish to use the sedative effect of cold, when the shock is not needed. Dr. West tells us that few methods of applying cold to the head are better than that which consists in half-filling two bladders with pounded ice or cold water, and placing them, each wrapped in a napkin, the one under, and the other upon, the child's head. By pinning the corners of the napkins to the pillow, you can secure them from being displaced, and can also prevent the weight of the upper bladder from resting too heavily on the child's head, while all danger of the bed or of the dress becoming wet is avoided.

Part xvi., p. 78.

Cerebral Affections simulating impending Apoplexy.—After mentioning the hydrocephaloid disease of children, Dr. Hughes refers to a similar affection in adults. He says:

Every practical surgeon of large observation, and every practical ac-

concheur of extensive experience, is well aware that giddiness, headache, dimness of vision, singing in the ears, throbbing of the temples, restlessness, sopor, and even the disposition or approach to coma, are symptoms which occasionally follow extensive hemorrhage as well as accompany plethora, or "determination of blood to the head."

We are reminded by Dr. George Burrows, that even Hippocrates observed that repletion and depletion of the vascular system were accompanied with similar symptoms of disturbance to the nervous centres. I shall quote a few well-authenticated instances, illustrative of this fact.

A lady, aged 25, had been frequently bled on account of symptoms in the head which had supervened upon an injury. Considerable relief had followed each bleeding, but the symptoms had soon returned, so as to lead to a repetition of the bleeding at short intervals for several months. When Dr. Abercrombie saw her, "she had a death-like paleness, and her pulse was very rapid, and as small as a thread;" but still she complained of frequent headache, violent throbbing in the head, confusion and giddiness. "It was agreed as a last experiment to make a trial of an opposite system—nourishing diet and tonics. In a fortnight she was restored to very tolerable health." The same author reports the case of a lady who, after leeching and other depletory treatment employed with benefit for a painful abdominal hardness following delivery, was, after three weeks, when reduced in strength, alarmed and agitated, and began to talk wildly and incoherently, and, "after a restless night, was in a state of high excitement, talking incessantly, screaming and struggling, with a wild expression of countenance, and a small, rapid pulse." Leeches, cold applications and purgatives, were employed with little or no benefit. A full glass of white wine was afterward given every hour, and after the fourth hour she was found composed and rational, her pulse 90 and of good strength, and from this time there was no return of the symptoms." He also observes, "that in the last stages of exhausting diseases, patients frequently fall into a state resembling coma; and I have frequently seen children lie for a day or two in this kind of stupor, and recover under the use of wine and nourishment. It is scarcely to be distinguished from the coma which accompanies diseases of the brain. It attacks them after some continuance of exhausting diseases, such as tedious and neglected diarrhoea." "I have seen in adults the same affection, though it is perhaps more uncommon than in children. A man considerably advanced in life, in consequence of a neglected diarrhoea, fell into a state closely resembling coma." An elderly lady, from the same cause, had loss of memory and squinting. "Both these cases recovered by wine and opiates: in the former blistering on the neck was also employed." He adds the very remarkable case of a gentleman, about thirty years of age, who had been reduced to a state of extreme weakness and emaciation. As debility advanced he had become considerably deaf; and "when I saw him," says the doctor, "he was affected in the following manner: he was very deaf while sitting erect or standing, but when he lay horizontally he heard perfectly. If when standing he stooped forward so as to produce flushing in the face, his hearing was perfect; and upon raising himself again to an erect posture, he continued to hear distinctly so long as the flushing continued; as this went off, the deafness returned." Dr. Marshall Hall states that "he is persuaded that the loss of blood is by far the most frequent and influential source of delirium and mania occurring in the puerperal state."

Richter and Mr. Travers relate cases of amaurosis resulting from loss of blood; and the latter author says, "A country lad, of robust constitution, became the alternately favored paramour of two females, his fellow-servants, under the same roof. He was the subject of gutta serena in less than a twelvemonth." He refers to another lad who had palsy of retina as a consequence of secret indulgence. "When bleeding," says Sir Benjamin Brodie, "has been carried to a great extent, symptoms frequently occur which in reality arise from loss of blood, but which a superficial observer will be led to attribute to the injury itself (concussion of the brain), and concerning which, indeed, it is sometimes difficult even for the most experienced surgeon to pronounce, in the first instance, to which of the two causes they are to be referred." Many quotations bearing upon the same point might be added; but it may be presumed that sufficient, and perhaps more than sufficient evidence has been adduced from authors of high repute, to show that a great variety of symptoms which are commonly, and under certain circumstances, correctly considered to be indicative of the consequences of inflammation of the brain, or of oppressed cerebral circulation from repletion or pressure, may, and not unfrequently do accompany conditions of the brain which are the direct reverse of these—such as loss of blood, or anemia and debility, from whatever cause arising.

It is of importance to recollect that, before deciding upon a plan of treatment, the heart as well as the pulse should be always examined; and that the force of the two should be compared; otherwise serious mistakes may arise and injurious consequences may result; as the heart may be beating with unusual force while the pulse is feeble, or the strength of both heart and pulse may be diminished, though serious organic disease may exist in the former; and the brain may be seriously, gravely, and even dangerously oppressed with blood, though the impulse of the central organ of the circulation may be diminished.

The treatment will consist in the removal of the cause when practicable, the administration of tonics, especially chalybeates, and moderate purgatives to secure gentle and regular action of the bowels, good diet, fresh air and moderate exercise. In very advanced cases direct stimulants will be needed. In cases which are of a doubtful nature, we should blister the nape and purge, while we allow a generous diet; until we are able to ascertain the exact character of the affection.

Part xix., p. 52.

Cerebral Diseases of Infancy.—In taking a general view of what has been written on cerebral diseases, we shall be struck, not so much with a deficiency of knowledge as to their character, pathology, or symptoms, as with the indefinite and unsatisfactory methods of treating them. This defect is probably due to the excessive desire manifested to base principles of treatment upon *post-mortem* appearances; but, whilst the latter, although fully known and accurately described, vary so much in relation to the symptoms they are supposed to occasion, how can the former be depended upon for safely averting the great dangers we have to encounter? There is yet much—very much, to be learned in the treatment of these diseases. In what manner can such knowledge be most readily and perfectly obtained? The investigations hitherto made upon this subject, enable us to determine certain generalizations, and to state a few established facts, which afford useful hints for practical application.

1. Cerebral diseases occur most frequently in children of a scrofulous habit, or born of scrofulous parents. 2. Scrofula greatly modifies the character of cerebral as well as other diseases. 3. Cerebral diseases may exist independently of scrofula. 4. Headache, vomiting, constipation, and more or less pyrexia, are a combination of symptoms denoting, in children, serious, and often unmanageable cerebral disease. 5. A species of hydrocephalus, chiefly indicated by the preceding symptoms, is generally accompanied with, or depends upon, tubercular disease of the brain or its membranes. 6. There exists another species of hydrocephalus, attended with the usual symptoms of phrenitis, of a strictly inflammatory nature, and curable by strictly antiphlogistic remedies. 7. Hydrocephalus resulting from tubercular disease may assume an active inflammatory type, and be scarcely distinguishable from the last variety, except from its not being so amenable to antiphlogistic treatment. 8. Symptoms similar in many respects to those of acute hydrocephalus in one or other of the above forms may arise from a system diametrically opposed to inflammation; these are curable only by a nourishing and mildly-stimulating plan of treatment. 9. Hydrocephalus, generally speaking, does not occur before the age of two years; and boys are more liable to it than girls. 10. Treatment, to be effectual, must be commenced at an early period of the disease. 11. The symptoms of cerebral diseases in children, and the *post-mortem* appearances, have not a definite or constant relation to each other; and the former are more to be depended upon than the latter for indications of treatment. 12. Constipation is not essential to the phrenitic variety of hydrocephalus. 13. Certain cases, accompanied with symptoms so constantly in connection with tubercular encephalitis as not to be distinguishable from the latter form of disease, admit of being cured; and may, therefore, be fairly considered as instances of the *curability* of a disease which is generally supposed to be incurable.

The treatment of diseases of children requires considerable tact and discrimination, both as to the nature of the remedies to be used, and the mode of employing them. We have tender bodies to deal with; their period of life greatly modifies the action of medicines; errors of judgment in prescribing are of more serious consequence, and life is altogether in greater jeopardy. It is often necessary to reduce arterial action, and *blood-letting* is sometimes attended with success, but in very young children this is a dangerous remedy, and probably not a few have fallen a sacrifice to its depressing influence. The usual method of drawing blood in children is to apply leeches, and children have bled to death from leech-bites. Cupping is an operation not easy to perform in children, but it is preferable to leeching, because by it the quantity of blood to be abstracted can be regulated, and the bleeding can be stopped as soon as enough blood has been removed. Blood-letting, as a remedy, is fortunately seldom indispensable at the period of life in which children are most frequently affected by cerebral diseases, my own experience would almost say *never*; for in a period of more than fifteen years, I have never myself drawn blood, either locally or generally (save by scarification of the gums or eyelids), from a child under six years of age, for any complaint whatever. How then are inflammatory complaints to be treated? What are we to do in a case of phrenitic hydrocephalus, if we are not to bleed? Are we possessed of any other effectual means of combating inflammation? Yes, we have many other resources for lessening vascular action in children which will often

times enable us to spare a fluid so necessary to existence, and so often wanted in later periods of diseases, when it is difficult, if not impossible, to supply it. The *warm bath* is a powerful agent for relieving the circulation in infancy; *antimonial medicines* will reduce power to almost any necessary amount in children; *purgatives* also; but owing to the extreme susceptibility of the intestines of children to take on irritation with which the brain very quickly sympathizes, it is not often advisable to use them freely; we may, however, safely employ *enemata*, which have the effect of reducing the pulse and lessening heat of skin in a very satisfactory manner, as well as removing offending matter, and encouraging a flow of bile. But there is another class of medicines both safe and effectual for abating inflammatory affections in children, provided the stomach be not too irritable to retain them. I mean *diuretics*, and I have repeatedly observed, whether in fevers or inflammations, that promoting a copious flow of urine has, in a striking manner, produced an antiphlogistic effect. These measures may be employed also in combination, and when they are thus combined and judiciously applied, I have yet to learn that they are not capable of effecting as much for the removal of febrile action with scarcely the possibility of doing harm, as is usually effected by blood-letting. In the more advanced stages of inflammation, *calomel* for the removal of lymph, and *iodine* (liq. potassii iodidi comp.) for the absorption of effused fluid, are well known and trustworthy remedies.

[Dr. Copeman remarks upon the difficulty there often is in distinguishing those cases which require stimulants from those which require an antiphlogistic plan of treatment, and recommends a minute attention to symptoms, as the only means by which this difficulty is to be overcome. He considers that the occurrence of febrile disturbance is generally a very good indication that simple remedies will not be sufficient, and that active treatment is required. After referring to the symptoms in thoracic and abdominal affections, he says:]

In head affections, unattended with fever, we ought not to resort hastily and actively to depletory measures, however much we may be inclined to suspect the existence of certain pathological conditions supposed to require antiphlogistic treatment. But there may be febrile excitement in a case where antiphlogistic treatment would be fatal. How are we then to judge? If the fever be of an intermitting character, leaving the patient feeble and depressed in the intervals, the pulse being unsteady and variable, it behoves us to be guarded in our employment of lowering remedial measures.

The following circumstances seem especially deserving of attentive consideration in the treatment of the diseases of infancy and childhood:

1. The delicate, perhaps only partially developed, structure of the vital organs, the intolerance, for the most part, of powerful medicines or doses, and the great restorative powers of nature at an early period of existence.
2. The necessity for adapting our remedial agents to the delicacy and susceptibility of the structures they are intended to influence, and fulfilling any given indications of treatment by the least possible violence or precipitancy, by the gentlest means.
3. Whilst entertaining a just idea of the nature and history of the disease we have to treat, we must at the same time observe particular symptoms minutely, and vary our plan of treatment according to the information which those symptoms are capable of affording.

4. The importance of endeavoring to the very last to preserve life, however desperate the circumstances may appear, keeping always in remembrance that "whilst there is life there is hope." *Part xxi., p. 3.*

Cerebral Disturbance resulting from Uterine Disorders.—*Vide Art. "Uterus."*

Syphilitic Meningitis.—[Among the most remote and latest, but exceedingly important signs of constitutional syphilis, are those of a cerebral origin. Little notice, however, appears hitherto to have been paid to the fact. M. Ricord, speaking of "the action of the osseous affections on neighboring parts," says, that one consequence of this species of compression is epilepsy, the fits seizing the patient as the osseous growth gets more considerable and irritating. He also mentions paraplegia as a casual effect of tertiary syphilis in the bones. Mr. Acton quotes this extract from M. Ricord, but upon the *disorder of the mind* they are both silent. Dr. Thomas Read, of Belfast, gives the following:

Case.—*Syphilitic Meningitis; Paraplegia; Hemiplegia; Amaurosis; Difficulty of Articulation, with Mental Hebetude.*—Mr. F., in July, 1847, was accompanied to my house by a surgeon of Belfast, who was naturally alarmed by the rapid advances of paralytic and other cerebral symptoms in his case. The patient required to be supported on his feet while his clothes were removed from the upper part of his person. His speech, from difficulty in articulation, was very imperfect; his powers of arranging his ideas and memory were slow and defective; vision very imperfect in both eyes. The gentleman who accompanied him had known him for some time. He had been treated for years by another surgeon for secondary syphilis—chiefly intractable ulcers on the limbs, face, and head; and on these parts there were several large cicatrices. He had placed himself under the former gentleman's care for progressively increasing amaurosis; the paralytic symptoms supervened, and rapidly advanced until he exhibited the aggravated and almost hopeless state of general paralysis in which I saw him. The history of the case, his countenance, and general appearance, led me to the impression that all the symptoms might be assigned to compression of the brain by development of syphilitic tumors of the dura mater; but as this could not be a certain diagnosis, and to guard against an error in judgment, I considered the rapid exhibition of mercury to be the safest course. I therefore advised the entire scalp to be shaved, a blister applied immediately over it, and one drachm of strong mercurial ointment to be rubbed in on any convenient surface twice a day. But I apprehended a speedy appearance of coma, and a necessarily fatal result.

Some eight days afterward I saw his surgeon, who told me that our patient had made a rapid recovery, and was then able to run up and down the steps of a very steep staircase. To my additional surprise, a well-looking dark man, with clear and expressive eyes, addressed me one day in the street, and, asking me if I did not know him, brought to my recollection the visit of himself and his medical attendant to my house, less than three weeks before. He was completely recovered, looked in full health, had perfectly regained his powers of motion, vision, and articulation, and was in full possession of all his faculties. Mercury here released every oppressed organ, gave flesh and strength by restoring the animal functions, and afforded one of the happiest triumphs of medical art over

disease I ever witnessed. Death must rapidly have closed the scene, had not this powerful and efficient agent arrested its course.

The practical conclusions deduced by Dr. R. from this and other forms of syphilitic cachexia, are :

1st. That a single symptom of cerebral disturbance, such as some form of mental disorder, may alone indicate the intra-cranial organic mischief in progress; a cachectic countenance may excite suspicion of its nature, but a close investigation of the patient's antecedents is required to affix its true character.

2d. That the employment of mercury in this *late* stage of syphilis is unattended with those formidable consequences particularly liable from its use in the primary forms.

Dr. R. believes that no measure of bodily exhaustion should deter from the prompt employment of mercury, once the disease is discriminated, and that the more advanced the stage—the wider the range of involvement—the more signally does mercury, *if appropriately and judiciously employed at the right juncture*, exhibit its strange conversion into a tonic, and its decided action as a restorative.

Part xxv., p. 63.

Vital Spot of the Medulla Oblongata.—At a meeting of the Academy of Sciences of Paris, M. Flourens took occasion to speak of the actual locality of the vital spot, or primum mobile of the respiratory act. By several experiments he has now determined that that spot is situated exactly at the point of the calamus scriptorius, between the ventricle of Auerstius and the junction of the V-shaped grey matter of the pyramids. This spot is, according to M. Flourens, about the size of a *pin's head*; above or below the same a sharp instrument may be thrust in without causing the respiratory movements to cease; but when the exact spot is transfixed, life ceases immediately. M. Flourens had made this communication in order that the precise locality of the nodus vitæ should be well understood.

Part xxv., p. 83.

Diagnosis of Cerebral Diseases.—1. When a person suffers from constant and dull pain in the head, with or without convulsions, the pain being limited to a certain region, the external surface of the head being cool and the pulse regular, the digestive system not much or not at all disturbed, and the intellect unimpaired; if any thickening of the bony structure can be perceived, or if the patient has suffered from syphilis, it may be conjectured as probable that there is thickening of the skull, and that the symptoms are due to that cause. In such a case, a moderate diet should be enjoined; leeches may be occasionally employed; the bowels should be kept gently open; but our chief reliance should be upon the internal administration of iodide of potassium in increasing doses, and continued for a long period.

2. When there is pain and heat of the head, *vomiting*, nausea, want of appetite, foul tongue, derangement of bowels, rapid and full pulse, squinting, delirium, thirst, and subsequent coma, and if the blood drawn be buffed and capped, there can be little doubt that the case is one of meningeal inflammation. In such a case, there is no time to be lost; the warm bath must be used in the case of a child; cold must in all cases be applied to the head; leeches are always necessary; calomel is to be freely administered, and alterative aperients must be given at the same time. By the adoption of such measures many valuable lives may be saved.

3. When the head is cool, the pulse moderate, the tongue clean, the motions healthy, *then*, although there may be the most violent and long continued convulsions, squinting, drawing in of the thumbs toward the palms of the hands, and all other symptoms indicating deranged action of the nervous centres, there is nevertheless an absence of serious centric disease. We may here reasonably hope for a favorable termination by the use of ordinary hygienic means; such as lancing the gums, if the patient be undergoing the process of dentition; attending to the quality of the breast-milk in very young infants; correcting any acescences in the *prima viæ*; change of air, and the judicious use of stimulants and tonics; and the adoption of all such other means as are calculated to improve the powers of the system in general.

It cannot be urged in too strong terms, that the mere existence of convulsions, however alarming they may appear, does not indicate, *alone*, a serious disease of the brain; these movements are merely the external manifestations of cerebral irritation, and are often caused by circumstances comparatively trivial. On the other hand, it must be remembered that, at all periods of life, the cerebral membranes, especially the *pia mater*, are apt to take an inflammatory action; and that, slight and web-like as this membrane is, and insignificant in appearance as are the lesions which it exhibits to the scalpel or to the microscope, yet upon its integrity or its unsoundness often depends the brightness, the perversion, or the obscurity of the intellect; and that an inflammatory disease of its texture is one of the most frequent causes of death. The most energetic treatment often fails to rescue the patient from the grave; but it is nevertheless of paramount importance to detect the malady during life, and, if possible, to arrest its progress.

Part xxix., p. 59.

Cerebritis.—When fever is present, of a typhus character, don't be afraid of the symptoms of inflammation in the exhibition of wine. When typhus is present, there may seem to be local inflammation either in the brain, heart, or other organs, but this is not real inflammation, and will really be aggravated by depletion.

Part xxix., p. 21.

Cerebral Diseases.—There are three different states of the muscles in hemiplegia, indicating different conditions of brain, and requiring different treatment. If the paralyzed muscles be *perfectly flaccid*, the cerebral lesion is atrophic in its nature, the very opposite to inflammatory; the vital powers are below par. If the muscles exhibit any resistance to motion, the lesion is of an irritative kind, as a small apoplectic clot, with laceration of healthy brain tissue around. When the muscles are hard and rigid, the brain lesion is decidedly irritative, sometimes inflammatory. In the first, a supporting plan of treatment is required; ammonia, wine, and quinine. In the last, bleeding, or, at all events, mercury is necessary. A clot, however small, will invariably give rise to coma; if very small indeed, it may be merely a lethargic state; if large, the coma will be long and profound, and accompanied by snoring. If the hemiplegia be from white or atrophic softening merely, there will be no prolonged, if any, loss of consciousness, and the intellect will generally speedily recover.

Part xxxvii., p. 30.

Value of Tonic Treatment in some Diseases of the Brain.—The following is an abridged lecture, delivered by F. C. Skey, Surgeon to St. Bartholomew's Hospital:

I wish to speak of what is called "ramollissement," or softening of the brain. I do not wish to speak of its pathology; I know very little about that, as to whether it is inflammatory or febrile, or what not. All that I pretend to know or to tell you is that the disease, as we see it, begins insidiously by loss of muscular power, and it occurs most frequently in men about the middle period of life; the gait or walk of such a patient is unsteady, and it seems natural to ask a surgeon what may be the cause of this unsteadiness or irregularity. A banker or a banker's clerk finds his style of writing changes; he has power, *quoad* power, he can use a dumb-bell, but he cannot regulate this power so as to write a letter, as he previously had done; his urinary system becomes affected, and his urine dribbles away, and even the rectum, from forgetfulness on the part of the patient, becomes partly paralytic; there is loss of memory or incoherence of ideas; small eccentricities appear. This man will spell some words badly; these are signs of recent cases: there is little or no implication of the reasoning power, at least to any extent, but the loss of power, as in handling a pen to write, is most peculiar, as well as the irregularity of spelling of monosyllables badly or backward in what is written. But if you wish for a more minute description of the disease, you will find it in the works of Rostan and others. Now these cases are common; this train of symptoms occurs in men who have undergone long anxieties in business, or this disease will occur in men who have had exhausting fevers or other maladies; or again, in the case of a man who rides with hounds five days a week, four hundred miles a week, and it may be, drinks wine, eats very little, marries late in life, suffers from venereal exhaustion!—his nervous system becomes "broken down," as it is called. What is the condition of the brain then? Is it a condition of excess of vascular or vital force, or the opposite? Can any of you recall a case of "ramollissement" as it used to be treated a few years ago? Happily for yourselves, perhaps not; but the principal point was to keep always in mind, "chronic inflammation," and to treat it accordingly. This poor gentleman must first be reduced, made to keep quiet, his diet regulated, his wine and fox-hunting stopped, and three grains of grey powder with rhubarb given at clock-work intervals, for what were called the "secretions," or to touch the gums for this chronic (?) inflammation. Next, his skin was steadily looked to, and that great catholicon of surgery lads, mindererus spirit, with antimony, was ordered, spoiling what little appetite the unfortunate patient may have had. He was rigidly confined to the house—but, mind you, with all this excellent drugging, his speech does not improve; he progresses, but it is from bad to worse. Very well! Now that is one view—now for another. Mark that there is a slow pulse, everything is below par, as I call it. In this, then, "chronic inflammation," some people count on their ten fingers all the drugs I use or adopt. I am very glad of it, for we have too much routine and rubbish in what is called "general practice." The eyes of the public are upon us; are you then justified in lowering this man with your antimony and your grey powder, and your mindererus spirit? Oh, no! But some Solon says you weaken the patient in order that he may get strong. In these cases I could never understand that kind of logic; believe me, if you wish to succeed in practice, you must give up such an idea; you must study nature a little more, and books and journals less. All the medical world of Europe is progressing; but we are still tied down to grey powder, and oceans of physic, and bleeding, whereas

what is required is that we follow the *vis medicatrix* and take advantage of the hints she affords us! Well, then, so much for that; now for a case of "ramollissement" as it is called. About two years ago, a physician called on me; he said, "You are wanted down to so-and-so (150 miles in the country). Mr. So-and-so (a rich country nobleman) has forced a catheter through his urethra; the poor gentleman has got 'ramollissement'; you know that we are not so uneasy about; that is incurable of course; if you can do any thing for it, well and good; but his faculties are completely gone." Well, to make a rather long story short, Sir B. Brodie and I saw him, and a fortnight after he came up to town, to his residence in Belgrave Square, and I had nearly the entire management of the case.

It is exactly in this sphere of life, of rich noblemen, merchants, or political men in the fashionable West End squares, that we can alone catch glimpses of these two opposites—viz., the excess of high living, and the excess of Sangrado bleedings and starvation or low living of us the doctors! Many of these cases are probably "heart disease," and a patient dies of a fainting fit, called weak brain, but it is weak heart! Well, the more I came to look at this case of this gentleman, the more I said to myself, the man is dying of exhaustion. I noticed he was better after dinner; I heard that he had had convulsions; this did not frighten me. Now, I want to ask you a curious question; have you ever seen a sheep killed? If not, I would advise you the next time you are near Aldgate market, just to look at the thing for yourselves. Just before all the blood is gone from the sheep, it is horribly convulsed; remember that fact also in weak children who are convulsed. Convulsions, in fact, as you will meet them in practice, are eight times out of ten the result of a very irritable state of the medulla oblongata or chord, which causes very slight irritations elsewhere to excite violent reflex or convulsive movements; thus, worms or indigestible food will cause convulsions where the nervous centres are weak or irritable. This condition of convulsions to my mind is almost always one of "exhaustion" rather than congestion; just mind that fact when you go into practice—convulsions, as caused by anemia, or "exhaustion."

But to go on with the case, I could not find that this gentleman had had any tonic treatment. I knew that if the brain be anemic, it cannot go on long in a normal manner, for nine out of ten cases of "ramollissement" are due to anemia; so I decided to let him go back to his old mode of living. I gave him a pint of claret a day, that he was accustomed to, in place of water-gruel! He seemed to improve on it. The ratiocinations of his friends did not come true that it would kill him, so we let him have also quinine and iron in place of leeches and water-gruel, and grey powder, and antimony, and *mindererus*!

I studied the case for a short time; there was a manifest improvement every week. I was called on one day; he was a little worse; did I bleed him? No: I had the experiment with the sheep in my mind; he is a gentleman of very great eminence. It would have appeared very brilliant in a "bulletin," like the brilliant operations elsewhere, that we came up the fifty-ninth minute of the last hour of his sad existence and opened the carotid or temporal, but I did nothing of the kind: I increased his wine. Well, at the expiration of three months, that gentleman made a political speech that utterly astonished his constituents. He can now ride to the fox-hounds as well as ever he did, and in the changes and chances of Par-

liament has filled a very important place; he is in fact, to all intents and purposes, cured!

I have had now nine or ten of these cases of ramollissement; they all have had slow pulse—a condition always improved by tonics. The heart is perhaps at the root of the disease rather than the brain; some of these patients had alarming syncope—that is heart, depend on it, not brain. I met Dr. Latham and Dr. Fergusson with one case, and we had a good deal to do to give force to the heart and pulse.

Now, I do not want at all to say—that in some of these very cases we may not have had “ramollissement.” I merely contend for the position, that leeches, oceans of physic, and starvation, are not the proper remedies. I will only say a few words relative to another case, which was seen by three of our ablest physicians in London—two pronounced it “ramollissement,” and the third “tubercle.” I think tubercle in the brain is a very rare disease in adults; this patient had excessively weak pulse; he had married late in life.

I gave him wine and the ferro-citrate of quinine in large doses—a remedy I have great faith in. Well, in three months he was quite recovered. I have said already I do not believe this disease to be of the nature of inflammation; with heat, pain, redness, swelling, etc., it strikes me as rather of the nature of gangrene, and as arising from anemia, not hyperæmia. This last gentleman, I ought to say, had an issue ordered for him in Dublin. Well, I have no objection to an issue in these cases, nor am I frightened at stopping an issue. There is something of the fabulous about what is written and taught in lectures as to stopping issues. This gentleman's issue healed up, or rather I took off the plaster, and never had that abiding faith in its efficacy that would induce me to put it on again. In the earlier stages an issue may do good; it can at least do no positive harm, like other things which have had more than a questionable character, as specifics for “ramollissement;” indeed, specifics so called, which unquestionably have hurried many patients to their graves, and which I would implore you to consider well in all their bearings before you adopt them.

Part xxxvii., p. 34.

BREAD.

Pharmaceutical Bread.—℞. Flour 3 lbs. Imperial; cold water, 1 1-2 pint Imperial; sesquicarbonate of soda, 1-2 oz. (troy weight); hydrochloric acid, 5 fluid drachms; a small quantity of salt, if required.

Mix the soda perfectly with the flour, and the acid with the water, then the whole intimately and speedily together, using a flat piece of wood or spaddle for that purpose, in preference to the hand. It may be made into two loaves, and put into a quick oven immediately. It will require about an hour and a half to bake.

Part v., p. 81.

The Bran Loaf for the Use of Diabetic Patients.—Dr. Garrod, in his lectures on diabetes, recommended the following formula:

Take a sufficient quantity (say two or three quarts) of wheat bran, boil it in two successive waters for ten minutes, each time straining it through a sieve, then wash it well with cold water (on the sieve), until the water

runs off perfectly clear; squeeze the bran in a cloth as dry as you can, then spread it thinly on a dish, and place it in a slow oven—if it be put in at night let it remain until the morning, when it perfectly dry and crisp, it will be fit for grinding. The bran thus prepared must be ground in a fine mill, and sifted through a wire sieve of sufficient fineness to require the use of a brush to pass it through; that which does not pass through at first, must be ground and sifted again, until the whole is soft and fine.

Take of this bran-powder 3 ounces Troy, 3 fresh eggs, 1 1-2 ounce of butter, rather less than half a pint of milk; mix the eggs with part of the milk, and warm the butter with the other portion; then stir the whole well together, adding a little nutmeg and ginger, or any other agreeable spice. Immediately before putting it into the oven, stir in first 35 grains of sesquicarbonate of soda, and then 3 drachms of dilute hydrochloric acid. The loaf thus prepared should be baked in a basin (previously well buttered), for an hour or rather more.

Biscuits may be prepared as above, omitting the soda and hydrochloric acid, and part of the milk, and making them of proper consistence for moulding into shape.

If properly baked the loaves or biscuits will keep several days, but should always be kept in a dry place, and not be prepared in too large quantities at a time.

Part xxxv., p. 303.

BREAST.

Engorgement of.—Iodide of potassium, recommended by Lisfranc. *Vide Art. "Iodic Preparations."*

Painful Affections of the Breasts—Acetate of Lead.—Dr. Smyth, in directing the attention of the profession to the use of acetate of lead in certain cases of obstinate diarrhoea, remarks as follows:

It has been found, that a solution of acetate of lead is capable of almost immediately stopping the vermicular movement of the intestines, if brought in contact with their coats; and it is well known that it possesses also the power of allaying the pain of inflammation when directly applied to an inflamed surface. Indeed, the quietude, and immediate relief from suffering, which I have occasionally observed to follow its application in some painful affections, especially of the mammae, occurring in women about the middle period of life, have often astonished me. Even the lancinating and burning pain of carcinoma is sometimes greatly mitigated by the steady application of the diluted solution of diacetate of lead of the Pharmacopœia. These effects, then, it must be admitted, are evidently the result of a sedative action exerted directly on the nerves of the parts to which the remedy is applied.

The official preparation is decidedly much too weak. For painful affections of the breasts, it should be made at least double or treble the strength of that ordered by the colleges; and it is likewise of great advantage to apply it a little warm. If these precautions be attended to, it will be found much more effectual as a sedative.

Part xiv., p. 87.

Lymphatic Tumor of the Breast.—The absorbent vessels on the upper

part of the breast leading to the axilla, are subject to a disease characterized by a painful, tender, and irritable swelling, and consisting of several cord-like indurations, at some times disposed in parallel rows, at other times connected after the manner of an anastomosis. Other parts of the breast are occasionally the seats of this affection; and in whatever situation it occurs, the swelling is transverse, following the direction of the absorbents toward the axilla. On a superficial examination, the tumor may escape detection; but it can always be discovered by taking the suspected parts between the fingers and thumb. When the pain and tenderness are extreme, the absorbent glands in the axilla, and more rarely below the clavicle, become enlarged from irritation. These glandular enlargements always disappear after the original disease has subsided: the lymphatic swelling in the breast also frequently retires, leaving no vestige behind it. In extreme cases, however, a permanent thickening takes place, occasioned by the deposit of lymph in the cellular membrane. This disease usually attacks females between the ages of fifteen and thirty-five, and is liable to recur repeatedly, where the constitution is in the peculiar state predisposing to it.

The condition to which I allude is that of comparative emaciation, accompanied with irregular or deficient menstruation, depression of spirits, and general debility. Hence suckling and chlorotic women are most frequently the subjects of attack. In some instances the patients are inclined to attribute the origin of the disease to external violence; in the majority of instances, however, if not in all, it has appeared to me to proceed from imperfect menstruation.

The size of the tumor in the mamma varies from that of an almond to that of an adult thumb; and the pain and tenderness attending it are of a remittent character. In some rare cases it attains nearly the size of a pullet's egg in large and plethoric mammae.

The natural termination of the disease, in severe cases, when the special treatment adapted for its cure is not employed, is in a painful and obstinate ulceration, which, in external appearance, has a considerable resemblance to that proceeding from scrofula, the absorbent glands in the vicinity being enlarged, tender, and painful, and the discharge copious. Before ulceration commences, the cellular membrane subjacent to the skin becomes indurated; this induration is gradually softened, the skin assumes an inflamed appearance, and a small chronic, scrofula-like abscess is the result. The ulcer which follows resists all local treatment until the proper constitutional remedy is adopted.

Diagnosis.—The discrimination of this disease from others resembling it is not difficult. From the chronic mammary tumor, described by Sir A. P. Cooper, it may be distinguished by the pain and extreme tenderness, by the vitiated state of the patient's health, by the absence of lobes and of any cyst, and by the disease invading the breast of suckling women, more frequently than those of virgins. The condition of the uterus, too, is widely different; in the mammary tumor, a state of excitement prevails, in the lymphatic tumor, a deficient circulation takes place in that organ, manifested by the discharge of an imperfect secretion, or false membrane, from its mucous surface.

From the irritable tumor, and neuralgic state of the breast, this disease may be known by the transverse, parallel, or anastomosing, cord-like bands, which are always present, by the remission of the pain and tender-

ness, and by the latter symptoms being confined, as far as regards the breast, to the immediate locality of the tumor. The diagnosis in the examination of very large breasts is sometimes difficult.

Treatment.—When the pain and tenderness are excessive, leeches and evaporating poultices may be applied to the integuments over the tumor. In general it will be found unnecessary to adopt any local remedies, as the pain is not acute, but usually of an aching kind, like that accompanying rheumatism or phlegmasia dolens. The patient should take some preparation of iron twice daily, have the bowels relieved by an aloetic aperient, if needful, and use a generous diet, and gentle exercise in the open air. Should suckling have been long continued, the infant should be weaned, especially if the patient has been the mother of many children. By attending to these directions, the tumor will entirely disappear in a few weeks, or all uneasiness will be so far removed that the patient will feel no inconvenience from it, unless the constitutional and uterine derangement should recur.

Part xviii., p. 304.

Sero-cystic Sarcoma of the Mammary Gland.—In this case, Mr. Lawrence states, a lady aged 55, of naturally pale complexion and nervous temperament, noticed, 30 years ago, a small tumor in the right breast, the size of a filbert, which remained stationary, however, causing no inconvenience, until four years ago, when it slowly increased, and became occasionally painful. About the spring of the present year it had attained considerable size, the integument covering it being raised into irregular prominences, and discolored. Then ulceration ensued, and from the opening protruded a red fungous mass, from which rather free bleeding took place on three or four occasions. Mr. Lawrence removed the tumor, which he describes as follows:

The right breast is enormously enlarged, the increased bulk being caused by a diseased state of the mammary gland. About one-half of the swelling at its base is covered by integument, thinned by distention, but not unhealthy nor morbidly adherent. The other half is a vast fungous protrusion, measuring about eight inches, in its transverse diameter, by five or six in the vertical direction. This is bounded by a raised collar, the thickness of the thumb, in which the integument and the diseased mass are completely blended. The exterior and the convexity of this elevated boundary are covered by a thin and perfectly smooth epithelium. The interior surface, and the excavation which it bounds, are nearly smooth and raw. Before removal it was a pinkish red, and not very sensitive; it yielded a thin yellow discharge, not offensive, but so abundant as to require change of dressing three or four times in the day. The mass, being pendulous, lay over the lower part of the chest and neighboring portion of the abdomen, of which the integuments, constantly wetted by the discharge, were bright red and partially excoriated.

The breast, which was not painful when examined, was movable upon the subjacent parts, and there was no glandular enlargement, nor any trace of disease in the axilla. The health was good; the patient slept well, had a fair pulse, and ate and drank with appetite.

The patient having assented, the operation was performed October 9. She was placed on a couch in the recumbent posture, and chloroform was administered. The breast having been drawn up and well supported, in consequence of its size and overhanging position, by a folded towel, the

under incision was first made and the skin turned back: then followed the upper incision, carried along the body of the swelling, so as to form a flap nearly three inches wide, when the whole mass was readily separated, by a few strokes of the knife, from the loose and healthy areolar tissue which connected it to the subjacent pectoral muscle. Several arteries bled freely, but were quickly secured, so that there was no considerable loss of blood. The edges of the wound came nearly together, and the patient was put into bed. There was some bleeding in the evening, caused by sickness, with vomiting; but it ceased on the application of cold, and she passed an excellent night.

The breast, which weighs 2 lb. 6 oz., presents, at its base, a firm lobulated mass. I now cut into it through the middle, to show you the internal structure. You see that it has undergone that morbid change called cystic sarcoma. It is a firm lobulated mass, composed of various sized cysts, filled, in the specimen now before you, with a soft, friable, vascular substance of light yellowish grey color. The cyst-walls, having been distended and thinned, have given away, and have allowed the protrusion of the red fungous growth, which, with everted edges, occupied the front of the patient's breast. The nipple is concealed amongst the folds of integument.

The disease, which is of innocent nature, commences by enlargement of the lactiferous tubes in the substance of the gland. These become tortuous and varicose, and the naturally oily secretion which they contain is converted into a thin watery fluid.

Upon dividing a breast so degenerated, we observe escaping from the different cysts fluids differing in consistence and color—in some parts thick and glutinous, in others oily, in others limpid and watery. The fluid may be either clear and transparent, or of various shades, from a light yellow to a deep brown tint, from admixture of blood.

As contrasted with the extirpation of a breast affected with scirrhus, the operation of removing one of these innocent tumors, which are always loosely connected to the neighboring structures, is comparatively easy. In the present case, the diseased parts were firmly connected only in one spot, where the areolar tissue was thickened, probably from the weight of the mass. In malignant diseases, the infiltration of morbid deposits always extends beyond the structures first affected. Hence it is often necessary to make the incisions at some distance from the obvious circumference of the tumor, and to include a considerable portion of integument, the removal of which prevents the approximation of the edges of the wound, and involves the necessity of our leaving an open surface of considerable extent—a condition which adds to the patient's danger, especially when the wound is situated over a cavity containing such important organs as those of the chest.

Part xxii., p. 295.

Scirrhus Degeneration of the Mammary Gland. The patient in this case was a nervous irritable woman, aged 45, a sufferer from rheumatism. The disease in the breast was discovered by accident, giving no uneasiness for some time; at length occasional darting pains were experienced, extending toward the shoulder. External examination detected partial induration of the gland, extending from the nipple upward and inward; the rest of the organ seemed of healthy appearance. Mr. Lawrence extirpated the whole breast in the usual manner. He remarks:

My object in directing your attention to this case is especially with reference to the question, whether in partial scirrhus of the mammary glands, we should extirpate the entire breast, or only that portion of it which we feel to be affected.

There exists, in my opinion, sufficient grounds to lay it down as a rule, that in all cases of cancerous degeneration of the mammary gland, in which an operation is a proper measure, the entire breast should be extirpated. If a portion only be removed, we run the risk of leaving behind some part which, though small in size, is either equally diseased, or is in a state likely to take on this morbid action, although there may be no cancerous matter absolutely deposited at the time.

Part xxii., p. 296.

Ulcerated Cancer of the Breast—Dr. James Arnott's Freezing Process.—Place equal parts of salt and well-pounded ice in a gauze bag, having the margins attached to a gutta serena ring. By gently touching the part to be rendered insensible for a minute or two with the bottom of the bag, the surface becomes suddenly frozen, and the pain of course disappears. To obviate the tingling sensation which is apt to ensue upon the return of sensibility, ice without salt is to be used, and thus no uneasiness whatever is experienced.

Dr. Arnott has proposed that his process should, in certain operations, take the place of chloroform; but it is plain that insensibility can hardly be carried deep enough for the generality of operative purposes. Where, however, a thin stratum only is to be implicated, it might certainly be used with advantage. To relieve the pain of cancer, it seems to deserve attention at the hands of those who have to prescribe the palliatives which are so indispensable in that melancholy affliction.

Part xxv., p. 360.

Chronic Abscess of the Breast and Milk Fistula.—The sinuses from this disease usually run in several directions through and behind the gland, and are very difficult to close. In a case under Mr. Birkett, poultices were applied until the irritation was diminished, and then three grains of iodide of potassium in 3j. of infusion of gentian was taken three times a day. The breast was wrapped in lint spread with ung. plumbi iodidi, and the whole supported by a bandage. In a fortnight afterward all these sinuses were injected with the tinct. iodini, by means of a tube carried to the end of the sinus. In three weeks afterward the sinuses had completely healed. If the skin of the nipple in a pregnant patient should be found delicate, Mr. Birkett advises the application daily of alum wash, or some other astringent. This plan will prevent irritation following. Sometimes milk abscess depends on the non-development of the nipple. In this case a shield should be provided beforehand, and the patient properly instructed as to its use.

Part xxvii., p. 203.

Mammæ—Galactagogue and Emmenagogue Effects of Warmth and Stimulants to.—*Vide Art. "Galactagogue."*

Part xxviii., p. 270.

BROMINE.

Bromine and its Preparations.—Bromine and its preparations have been shown by the experiments of Magendie, Barthez, Brame and others,

to possess therapeutical properties as nearly as possible identical with those of iodine and the iodides.

Mr. O'Reilly having had his attention called to the peculiar properties of the mother waters of many brine springs in the United States—the result of their evaporation for procuring common salt, found by experiment that they contained bromine in large quantities—nine drachms in every gallon.

The forms in which it has been used on the continent are, in the simple state much diluted, and combined in the form of bromides with potassium, barium, calcium, iron, and mercury. These preparations are made by processes exactly similar to those used for procuring the corresponding combinations of iodine. As a substitute for the tincture of iodine, M. Pourche has employed the following solution; bromine, one part; distilled water, forty parts; dose, from five to six drops in some aqueous vehicle, three or four times daily. For external use he employs a solution four times as strong as this. The bromide of potassium is very soluble in water, sparingly soluble in alcohol; the dose of it is from four to eight grains three times a day; to prepare an ointment from it, four parts are rubbed up with thirty-two parts of lard; and if a stronger ointment or one resembling the compound iodine ointment be wished for, six drops of bromide are added to this. The bromide of barium is also soluble in water; the dose of it is from one to five grains three times a day; the ointment is prepared by combining it in the proportion of one part to ten of lard. The bromide of calcium is prescribed in the form of pill made with conserve of roses; the dose of it is from three to ten grains. The bromide of iron is a brick-red deliquescent salt, very soluble in water; it is not so easily decomposed as the iodide of iron, and is given usually in the form of pill made with conserve of roses and gum arabic; the dose of it is from one to three grains; it has been employed externally, also in the form of ointment, prepared with one part of the bromide to fifteen of lard. Two bromides of mercury have been used; the first, a sub-bromide, is white insoluble powder: the dose of it is one to two grains daily; the second, a bromide, is fusible and volatile, and soluble both in water and alcohol: its dose is one-sixteenth of a grain, gradually increased to one-fourth of a grain, daily. All the preparations of bromine may be readily known from those of iodine by their not disengaging violet-colored vapors when concentrated sulphuric acid is poured on them. In France, bromide of potassium has been of late fraudulently sold for iodide of potassium, in consequence of the high price of the latter; a sophistication of but little importance, if, as we are inclined to believe, the medicinal action of both be identical.

Part. xiii., p. 172.

Bromine—Uses of.—Vide Art. "Hepatic Affections."

BRONCHITIS.

Acetate of Lead, Lobelia, etc., in Bronchitis.—The administration of acetate of lead is recommended by Dr. Henderson, in that period of bronchitis in which *evidence of abundant secretion exist*. The acetate may be alternated with antimony, ipecacuan, calomel, or such remedies as the exigencies of

each case demand. The common doses for children have been, according to the severity of the case, a quarter, half, or whole grain, from eight to ten times a day. In chronic, mucous, and mucopurulent bronchitis, the acetate of lead may be given in pill, combined with squill, and extr. of hyoscyamus, three or four times a day.

In reference to the relative merits of act. of lead, and tincture of lobelia, in the treatment of bronchitis, the editor observes:

If the acetate of lead is capable of thus checking the great secretion of mucus in bronchitis, of course we need not have recourse to expectorants to get rid of it; but we doubt whether the powers of this medicine are quite equal to what Dr. Henderson here relates. At any rate, we feel convinced that in many cases, expectoration is highly conducive to the recovery of the patients, and it would be highly injudicious to check it. "Inflammation of a mucous membrane," says that eminent physician, Dr. Williams, "involves a certain structural change, probably interstitial effusion, that can be relieved *only* by a free secretion from the inflamed membrane—expectoration is a necessary process." And for this reason we would strongly recommend to the profession the lobelia inflata, which, from many years extensive use, we have found to surpass all other medicines as an expectorant. In our opinion it is far superior to ipecacuan, squill, tartarized antimony, and all other expectorants now in common use. The way we prepare the tincture, is by macerating for 14 days, three ounces of the lobelia inflata in three pints of proof spirit. We give from 15 minims to half a drachm of this tincture to an adult every few hours, and in the latter stages of the attack, when the system is sinking, and the peculiar blue appearance of the skin is increasing, we combine small, and gradually increased doses of the carbonate of ammonia, which enables the patient more effectually to clear his bronchial surfaces. In this effect of ammonia, we agree with Dr. Williams, who says that he "is disposed to think that it is more than an ordinary stimulant, and acts in an especial manner upon the bronchial membrane."

The dose of this tincture of lobelia to an infant is about 10 drops, gradually increased till vomiting is produced; we have frequently been astonished at the ease with which the mucus is expectorated after this medicine has been taken. It seems to have the soothing effects of tobacco, as well as its expectorant virtues, after the peculiar irritation which it invariably produces on the fauces has subsided. We have found it more especially useful in infants and young children who are so liable to bronchial affections. It seems to act like a charm when the early acute symptoms have in some measure subsided, and when the membrane is so loaded with mucus, or otherwise thickened, that decarbonization of the blood is no longer properly performed; the blue, livid color of the surface will often rapidly disappear, and a more healthy hue take its place. We have not perceived the same powerful effects produced so regularly and invariably by ordinary emetics, and this we have accounted for, by supposing that it must be both an expectorant and a sorbent, combining as it were, the effects of opium and ipecacuan. *Part i., p. 76.*

Counter-irritation.—As a counter-irritant in bronchitis, recommended, a liniment composed of one ounce of strong acetic acid, and two ounces of spirits of turpentine, shaken together, and freely rubbed upon the chest, *pro re natâ.*

Part ii., p. 23.

Extract of Monesia.—The preparation of monesia, which has been most frequently used, is the extract in the form of pills, in doses of from 12 to 36 grains during the day. *Part ii., p. 77.*

Poultices.—In the bronchial irritation attendant upon the exanthematous fevers, poultices to the chest are recommended; also to the extremities, when want of energy appears to exist in the system, preventing the coming out of the eruption. *Part iii., p. 42.*

Colechicum Autumnale.—Dr. Lewins observes: It is reasonable to infer, from the powerful influence which colechicum possesses in diminishing vascular and nervous excitement, and from its effects on the excretory organs of the body, and probably in the way of equalizing the circulation, that it may be useful in many local inflammations, both acute and chronic, so as to become a valuable auxiliary to the lancet; and in some instances entirely to supersede its use. So long ago as 1820, Mr. Haden published a work on this subject, in which he has related cases which prove, as we might have expected, the meadow-saffron to be a remedy possessed of great power in relieving such states of the system. He employed it principally in pulmonary and laryngeal inflammation with decided advantage; and in such cases, he seems almost entirely to have trusted to its effects, to the entire exclusion of blood-letting. Although I am not so sanguine as to expect that, in acute forms of such diseases, we can depend upon colechicum alone, yet, from what I have seen, I speak with confidence when I state that, with the exception of depletion, there is no remedy capable of producing more beneficial results; and in many sub-acute inflammations, more particularly, the evacuation of blood need be very limited in extent, if promptly followed by the judicious administration of colechicum. In pleurisy, pneumonia, bronchitis, and croup, I have seen the most decided benefit result from its employment. *Part iv., p. 13.*

Treatment of Bronchitis.—Dr. Williams remarks as follows: In the sthenic form, where there is a hard, full pulse, with heat of skin, there is no doubt of the propriety of using the great remedy for inflammation—that is, blood-letting, both general and local; but it is not to be used extensively, for the patient does not bear the loss of a large quantity of blood. Moderate bleedings give relief, but it is not permanent. Small blood-lettings from the arms, and cupping between the shoulders are necessary. We must, in fact, rather consider that the true termination of this inflammation is by expectoration, as this is the natural mode in which the vessels relieve themselves. And it is very rare that we can stop this termination by any kind of blood-letting. The remedy most useful, and perhaps, even above blood-letting, because it is more safe, is tartarized antimony, given in doses of from a quarter of a grain to half, or even a whole grain, every three or four hours, in combination with hydrocyanic acid, to prevent the cough, or digitalis, if the pulse is frequent and hard, or colechicum, if the urine is particularly scanty; and generally combined with narcotics, to quiet the severity of the cough. It is not advisable to give narcotics in the first stage. The effect of opium is to check the expectoration and increase the pulmonary congestion. You must not, therefore, combine opium with tartar emetic as an expectorant. Opium should be given with belladonna and stramonium. It may be given in combination with calomel, in the sthenic as well as the asthenic form, where the stomach is too

irritable to bear antimony, and where there is great tenderness at the epigastrium, and some signs of fullness, a very much loaded tongue, and disordered evacuations. Here calomel or mercury, together with small doses of opium, are often highly useful. Blisters are not suited to the sthenic state of bronchitis, where the heat of skin continues, and the pulse is very strong and hard; but even in this stage some forms of irritation may be useful. I have seen tartar emetic in this case rubbed over the surface of the chest, produce a copious pustulation, affording more decided relief than blisters. After rubbing in the tartar emetic with a piece of flannel, place a bit of flannel, soaked in the solution, on the chest; then place a piece of macintosh cloth over it: this has the effect of keeping up an action like a warm poultice. This is actually an irritating poultice, and causes pustules in great quantity. This may be used where the strength is too low to bleed; and where you do not like to apply blisters, which often increase the fever, until the blisters rise. But when the inflammation has given way, in some degree; when the pulse has lost its hardness, and the skin has lost its heat; and something like lividity begins to appear; when the expectoration becomes somewhat opaque, then blisters may be used freely, and give most effectual and permanent relief. Small blisters often cause quite as much irritation as large ones, but they do not produce that effectual discharge on which the great efficacy of the blister depends. In this case, too, as the acute stage begins to decline, and the symptoms become more asthenic, then it is of great consequence to give remedies to promote the act of expectoration. The remedies most useful are salts and senna, citrate of ammonia, and, where there is great difficulty in the expectoration, carbonate of ammonia and squill, and various other means to keep up the strength. It becomes sometimes necessary to give not only carbonate of ammonia and ether, and other stimulants, but, where the patient is gasping for breath, you must give brandy and wine to keep the patient alive. The good effects of this treatment are generally manifest in the general symptoms before they become perceptible in the physical signs. The pulse becomes firmer, and the countenance improves—becoming less livid, the breathing less laborious, and the expectoration more easily thrown off; after a time the improvement is indicated by the physical signs. The greatest care should be observed in the employment of the antiphlogistic treatment, in the asthenic form of bronchitis. Cupping, or a few leeches, or blisters, instead of drawing blood, may be used in the early stage. Tartarized antimony, too, may be given with some stimulant expectorants—salts of ammonia and others. Opium may be more freely used in the asthenic form of bronchitis. A succession of blisters applied to the chest is often useful, where the expectoration is excessive, and of a somewhat purulent character, and without fever; it is sometimes also useful to employ mineral acids, and in these cases it is often found that the inhalation of iodine vapor is useful. In most cases it is proper to use purgatives and expectorants. Narcotics may be given from time to time. It is of great consequence, in chronic cases, to attend to the general state of the functions, and if there is anything like gastro-enteric disorder, to give small doses of mercury to conduce to the proper action of the liver and keep the bowels open; and to remove any gouty tendency that often occurs in combination with chronic bronchitis, one of the best remedies is colchicum. It is important to observe carefully the diet. Chronic bronchitis, in young

persons, may follow measles, small-pox, and scarlatina, and this is a more serious form of disease, because the inflammation is here more intense.

Part vii., p. 59.

Inhalation of Ammonia Gas.—The inhalation of ammonia gas in certain states of the mucous surfaces, has been recommended by Mr. Smee. When we allow the fumes of ammonia to come in contact with the eye or nose, we are aware of their stimulating property; there instantly follows an increased secretion from the mucous surfaces. When the same vapor is admitted into the mouth, we find that the glottis does not resist its intrusion, and it is found to pass into the innermost recesses of the lungs, and instead of producing disagreeable effects, causes sensations which are extremely grateful. The effect of this inhalation is to cause the dry passages to be lubricated with an increased secretion of mucus, and the previously inspissated phlegm is now loosened and easily expectorated. This seems to be a valuable suggestion in many cases of chronic bronchitis, where we are in the habit of combining the sesquicarbonate of ammonia with the several expectorants. The liquor ammoniac in common use, is generally strong enough, but it is perhaps better to commence with a weaker solution. If the liquid be placed at the bottom of a common bottle, the patient may apply his lips to its mouth, and draw in his breath, when he will inhale a certain quantity. Two, three or four inspirations will in general be sufficient at one time; but this may be repeated several times a day. A more convenient apparatus, however, is the common inhaling bottle, sold in most shops, and now generally used for the inhalation of the vapor of iodine, conium, and other medicines. Since the publication of Mr. Smee's paper, we have tried the same thing in that peculiar dryness of the fauces, which often accompanies affections of the kidneys, and especially diabetes, and we may add that it has been attended with considerable though temporary relief. It may also be used in chronic hoarseness, in a relaxed, swollen, and edematous state of the mucous membrane resulting from various causes; in cases of incipient cynanche tonsillaris, in syphilitic ulcerations of the throat, in old standing cases of asthma. Of course we need not add that it would be deleterious in all cases where acute inflammation is going on.

Part vii., p. 64.

Bronchitis complicated with Rheumatism.—The following mixture advised:

℞. Almond emulsion, eight ounces; vinegar of colchicum, half an ounce; acetate of morphia, one grain; nitrate of potash, half a drachm; mix. Dose—half an ounce every hour, or every two hours.

If colchicum does not relieve in two or three days, advised to have recourse to mercury.

Part viii., p. 25.

Naphtha and Naphthaline.—It is considered quite probably that many cases which have been related as phthisical, in which naphtha was found so beneficial, were cases of acute or chronic bronchitis, of more or less severity, in which many of the physical signs of phthisis might be present, but where the real disease was absent.

The dose of *naphtha*, as stated in Mr. Wilson's paper, was ten drops, gradually increased to twenty, three times a day. In cases of chronic bronchitis this remedy may prove valuable.

When a little naphthaline is applied to the tongue, it causes a peculiar

heat and pricking sensation, which extends down the throat and bronchial tubes, and, exciting a spasm of the latter, ends in inducing a cough. It may be used in the form of a syrup, composed of fifteen grains of naphthaline, suspended by a small quantity of boiling alcohol in about four ounces of syrup, of which the dose is a teaspoonful every quarter of an hour till expectoration is produced; or an electuary may be made, consisting of eight grains of naphthaline in half an ounce of any simple electuary, and the dose proportioned so as to give half a grain or a grain of the naphthaline every quarter of an hour as before.

Part viii., p. 47.

Counter-irritants in Bronchitis—Recommended to be applied not merely over the chest, but to the nape and along the sides of the neck, over the epigastrium, and in the course of the cervico-spinal and pneumogastric nerves generally.

Dr. Graves thinks that the spirit of turpentine exercises something more than a mere counter-irritant action, and proposes the following formula for imitation:

Strong acetic acid, ℥ss.; spirit of turpentine, ℥ij.; rose water, ℥iss.; essential oil of lemon, a few drops; yolk of egg, sufficient to suspend the turpentine.

Part viii., p. 80.

Naphtha in Bronchial Affections.—Whether or not the opinion of different writers on the use of this medicine in phthisis be perfectly correct, there seems to be no doubt that in many cases of chronic bronchitis, which frequently bear a strong resemblance to phthisis, it will be found a valuable medicine. A case is related by Mr. Proctor, of Witham, in which, after an attack of acute bronchitis, difficulty of breathing, cough, with expectoration of a well-marked purulent character, and nocturnal perspiration existed. There was also great emaciation, with occasional hemoptysis. The following medicine was prescribed:

R. Naphth. rect., ℥j.; liq. op. sed., ℥ij. M. - of which he took fifteen drops three times a day, in a little water. The naphtha was continued for about two months, when he reported himself well.

Part ix., p. 33.

Alum in Bronchitis.—Dr. Andrews strongly recommends the use of alum in acute as well as in chronic bronchitis. His usual formula is forty-eight grains in five ounces of half boiling water, with half an ounce of syrup. The dose varies from half a drachm to half an ounce three or four times a day, according to the age of the patient.

Part xii., p. 76.

Ipecacuanha in Emetic Doses, a Restorative in Cases of Sinking, etc.—Dr. Higginbottom says: I have found an emetic dose of ipecacuanha a very valuable remedy at that stage of bronchitis where a sudden low or sinking state has come on with oppression at the chest, and the expectoration difficult, endangering suffocation. Vomiting with ipecacuanha has not only soon relieved these symptoms, but has roused the whole system, and has produced such a decided change, as to render the patient convalescent in a few days. I have never seen the same good effects in such circumstances produced by any other remedy.

Part xii., p. 133.

Bronchitis—In Infants.—Dr. Miller directs, when very severe, to make use of the warm bath, and give one grain of calomel and two of ipecacuanha with a little compound tragacanth powder, every four hours; if less severe, three times a day, and lengthen the period as improvement takes place. After the first or second dose, the ipecacuanha does not act

as an emetic. When necessary to apply a blister to an infant, place a piece of tissue paper between it and the skin, or dip a piece of blotting-paper into acetum cantharidis; apply it to the part, and in ten or fifteen minutes you will have a blister. *Part xiii., p. 88.*

Bronchitis.—Sometimes there is little or no expectoration during or after an attack of bronchitis; but there is a most teasing cough. In such case, an opiate is indicated, and may be safely given; but you must be very careful how you prescribe opiates in bronchitis. If the cough is excited by the mucus contained in the bronchial tubes, and not by an irritable condition of the nerves or their lining membrane, it is nature expelling an injurious thing. The mucus *must* be got rid of somehow, and I do not know how it can be got out of the tubes except by coughing. If you give an opiate, you paralyze the sensory nerves. You paralyze the muscular fibres; and, at last, when the mucus has accumulated to such an extent that your patient must cough or die, he cannot cough! Old people are often complaining of their violent morning cough—as soon as they awake they begin; but it is because mucus has accumulated in the bronchi during the night, and it is only perceived by their mucus membrane when sleep ceases—the sentinels have been dormant. But the mucus *must* be expelled, and, therefore, the patient *must* cough. The plan in these cases is to reduce the *bleorrhœa*; first, by taking care that the membrane is not irritated by cold air, and then by suitable remedies. In the meanwhile preach patience to your patient, and tell him his cough is his safeguard so long as the lungs are clogged with phlegm. Sometimes mothers go to a druggist for “something for a cough” that their children had: they get oxymel of squills and syrup of poppies, give a good dose to quiet the babe at night, and in the morning send for the doctor—its cough is stopped, it is “closed in the chest,” its lips become livid, and you have to repair the mischief done by the opiate. *Part xv., p. 97.*

Chronic Bronchitis and Bronchial Asthma.—Dr. Thompson proceeds to notice the remedial treatment recommended by authors, and to show that the results are too often unsatisfactory. Antimony given alone is not altogether useless; but it is inadequate, and may be carried to such an extent as to injure the constitution, without permanently improving the condition of the tubes. Counter-irritation, although strongly recommended, produces only temporary advantage, and superadds to a trying malady a painful annoyance. Acids check expectoration, and often occasions tightness of chest. Opiates, so often given to allay the incidental cough, not infrequently induce severe pleurodyne. The plan which Dr. Thompson first adopted, some years ago, he has, with certain modifications, very extensively employed. It consisted mainly in establishing on the bronchial tubes, gently, but rather rapidly, the influence of mercury.

The formula which Dr. Thompson is accustomed to employ consists of blue pill, half a scruple; antimonio-tartrate of potass, one grain; extract of conium, one scruple, divided into eight pills. The duration of treatment varies with the severity of the disease, and the susceptibility of the patient; but it is often sufficient to administer one pill thrice daily for four days, then twice daily for four days, and afterward every night for a week. Under this treatment, the sonorous rhonchus usually disappears in a few days, or becomes audible only when the patient takes a deep inspiration, and the expectoration is rendered less tenacious and more opaque.

When the breathing becomes comparatively easy, and the only rhonchus heard is the mucus, the mercurial pill may be given less frequently, and ipecacuanha, or, in debilitated subjects, compound squill pill, substituted for antimony. When all rhonchus has disappeared, some roughness of respiratory murmur is often observable, and till this is removed the mercury must not be suspended, or a relapse would be probable. An occasional purgative may be advantageously employed, and when the mercury is discontinued, iodide of potassium is often of value in establishing a healthy condition of the bronchial membrane.

Mr. Hird, as long as he recollected, had been in the habit of employing similar remedies to those mentioned by Dr. Thompson in a like class of diseases. In chronic cases he abstained from the use of antimony, and commenced the use of blue pill, in half or one grain doses, and two grains of opium. In young subjects he gave one grain of opium for a dose; and when there was a tendency to dropsical effusion, two or three grains of squill pill were added to each dose. Latterly, in addition to these remedies, he had employed dry cupping with the greatest possible advantage. In old persons, where the expectoration was free, but the body debilitated, he used a decoction of senega with ammonia. Mr. Stedman had employed the lobelia inflata, in doses of twenty minims of the common tincture, as an antispasmodic, in cases in which there was but little expectoration. He found, that if there was much expectoration, it was checked by the lobelia.

Part xv., p. 22.

Treatment of Bronchitis in Children.—In a mild case, give James's powder with a little calomel and ipecacuanha every four hours, and when, as perhaps in twenty-four or thirty-six hours, the child is relieved, omit the calomel, and give small doses of antimonial and ipecacuanha wine in a mixture. In severer cases, where the child is strong, apply leeches beneath the scapulae; give an emetic dose of tartarized antimony, and then by repeated doses keep the child under its influence for a day or two. Be very careful, however, not to depress too much by the use of antimony, which is not borne so well by children as adults; when the medicine ceases to vomit, or is merely regurgitated without effect, and especially if the face should be livid, or the pulse faltering, discontinue the use of this medicine, or give it at longer intervals with ipecacuanha in an emetic dose. Emetics are of great use, especially in the evening exacerbation of the disease, and in the morning when the bronchi have become filled with mucus. Nervous dyspnoea may be relieved by a mustard poultice, and the hot or warm bath, according to the strength of the patient. If the disease becomes chronic, give tonics, especially the extract of bark, apply a stimulating liniment to the chest, and give an emetic of ipecacuanha every night; or if there is much secretion, give decoction of senega, with ammonia and tincture of squill.

Part xvii., p. 80.

Use of the Seeds of Shellandrium Aquaticum in Phthisis Pulmonalis and Chronic Bronchitis.—*Vide "Phthisis Pulmonalis."*

Dr. Todd's Views and Treatment of.—The alterations in the lung which chronic bronchitis tends to produce are—first, the immediate changes, and, secondly, the remote ones. The immediate changes are those which affect the mucous membrane and muscular fibres of the bronchial tubes, as well as the tubes themselves; such as inflammation, thickening, altered secre-

tions—perhaps even ulceration—and also more or less dilatation of the tubes. The remote changes are a still further dilatation of the tubes—a dilatation of the air-cells; and when that dilatation goes beyond a certain point, a stretching, and even a rupture of many of the bands of elastic tissue which are found in the lobules. This stretching of the bronchial passages and cells gives rise to a corresponding change in the air-cells. The expansion of the air-cells causes an extension of the meshes of the capillary net-work distributed upon and within them; and the rupture of many of the intersecting bands of fibrous tissue causes obliteration of their blood-vessels. Thus the capillary system of the lung becomes diminished in its capacity, and thus is explained the fact long known, that emphysematous lungs are apt to be pale, and to look as if they contained but little blood.

Now, the state to which the lung is thus brought by a long continuance of chronic bronchitis, is that which we call *emphysema*, in which there is more or less dilatation of a greater or less number of air-cells, and a consequent diminution in the area of the capillary system belonging to them.

Chronic bronchitis, however, is not the sole cause of emphysema, although certainly the most frequent. That state of lung will follow repeated attacks of asthma; and it may be caused by great and prolonged efforts; and there are those who believe that it may arise even in the absence of any such exciting causes, in persons who have a certain constitutional weakness of the lungs, which may be inherited.

In both the acute and chronic forms of bronchitis one of the most valuable remedies is counter-irritation. This I employ very freely in these cases, not so much by blisters as by turpentine or mustard, and there is this great advantage in this mode of counter-irritation, that you can apply it frequently and at short intervals, and moreover it is immediate in its effects, whereas a blister takes several hours to produce vesication, and it cannot be speedily reapplied. Dry cupping is also a useful form of counter-irritation, and very applicable to such cases as I have mentioned.

Generally speaking, patients laboring under bronchitis, and especially those who have had many attacks, are not very tolerant of a depleting or depressing treatment. General bleeding by venesection is, in many instances, highly dangerous; topical bleeding is borne better; when tried, only a small quantity of blood should be taken.

The medicines most applicable to these cases are those which produce a free diaphoresis, and expectorants, sometimes sedatives. When the expectoration is viscid, and sticks to the tubes so as to make it difficult of dislodgment, great benefit often results from the cautious use of tartarized antimony in small doses; but this must be used only for a very short time, as it tends to produce a profuse watery expectoration, and very much to weaken the patient; as soon, therefore, as the very viscid character of the expectoration is overcome, it should be given up.

When you wish to promote expectoration without causing any undue increase in the quantity of secretion, you will find nothing better than ammonia. In bronchial catarrhs, if there be fever, it may be given freely with the liquor ammoniæ acetatis, and you thus get a copious diaphoresis also. I am also in the habit of using the chloric ether pretty freely in bronchial attacks, either alone or conjointly with ammonia. It is a valuable stimulating expectorant, and has some sedative influence likewise; if not given in too large a dose it is an agreeable medicine to take, and forms a pleasant ingredient for a cough mixture. The decoction of the polygala

senega is much lauded for its influence on bronchial affections; I have given it very freely, and, except for its unpleasant taste, can find no fault with it, nor can I bestow upon it any very strong eulogiums.

With the use of sedatives you require caution, especially with opium. Conium, hyoscyamus, hops, etc., are well borne on the whole; but nothing relieves irritable cough so effectually as opium; yet when there is much bronchial congestion, you will beware of using it too freely, as it unquestionably tends to increase that, and to endanger the life of the patient. On the other hand, when expectoration is free or too profuse, a moderate dose of opium often exercises the most beneficial influence, procures sleep, moderates expectoration, and relieves the cough. The reputation of the old pectoric elixir, modernized into compound tincture of camphor, is likely to last even through these days of skepticism.

In the more advanced stages, and especially if there be sweats, tonics are useful, and sometimes astringents containing tannin, or even the tannic or gallic acid.

Part xav., p. 91.

Chronic.—*Vide* Selections from favorite Prescriptions. Art. "Medicines."

Part xxxii., p. 261.

Chronic Bronchitis.—We believe the attacks of this disease to be often nervous and spasmodic rather than inflammatory, and the aim of our treatment should not be to increase the secretion, but to remove the nervous condition on which the cough, secretion, dyspnea and tightness depend. For this purpose, banish expectorants, and give small doses of morphia, say the one-sixteenth of a grain, four times a day. As a preliminary step, remove all sources of irritation, and attend to the liver and bowels.

Part xxxiii., p. 101.

Chronic Bronchitis.—In cases of bronchitis of long standing, the following mixture is very useful: Take of tannin three grains; extract of belladonna three quarters of a grain; extract of conium two and a half grains; infusion of senna three ounces; fennel-water and syrup of marsh-mallows of each one ounce and a half: *M.* A tablespoonful to be taken every two hours.

Part xxxvi., p. 55.

Chloroform in Bronchitis.—*Vide* Art. "Chloroform."

Chronic Bronchitis, Asthma, etc.—In a considerable number of cases of chronic bronchitis, asthma, irritable cough, etc., striking relief has followed the inhalation of carbonic acid, and "in several chronic instances the benefit has been at once both speedy and permanent." A common wine bottle, with a perforated cork and caoutchouc tube attached, and containing crystallized tartaric acid, and carbonate of soda, with a little water, are the materials required. The end of the tube may be placed in the patient's mouth and respiration be freely performed. The carbonic acid acts as a local anæsthetic.

Part xxxviii., p. 250.

BUNION.

Treatment of Bunion.—Recommended that the bunion be kept constantly covered with lint dipped in warm water, this being well defended

also by oiled silk. The best mode of applying the latter is to cut a strip about half an inch in width, and three or four inches long, turning it round the affected member. The lint should be changed night and morning, and any hardened cuticle should be gradually peeled off. When matters are improved, the continued application of the lint will not be necessary, but the oiled silk should be constantly worn, to prevent a return of the disturbance.

Part ix., p. 187.

Bunion, Ganglion, etc.—Diagnosis and Treatment.—In certain situations in the body, says Mr. B. Cooper, it is extremely difficult to form a diagnosis of bursæ mucosæ; they are sometimes so hard as to be mistaken for small exostoses; and by the enlargement of the bursa between the latissimus dorsi muscle and the inferior angle of the scapula, a tumor may be formed which might be readily mistaken for chronic abscess, scetoma, or even malignant disease; but a surgeon conversant with the character of ganglia in their natural state would soon discover the real cause of the swelling.

On the feet, and more particularly on the inner side of the root of the great toe, an adventitious bursa, termed a bunion, is very frequently formed; it is produced by tight and ill-made shoes, which force the great toe into an unnatural position, out of the line of the axis of its metatarsal bone and under the other toes, in such a manner that the bone of the first phalanx presses forcibly on the capsular ligament of the joint, and induces the inflammation and acute pain inseparable from this distortion. Unless the deformity be remedied, the continued pressure of the bone tends to increase the inflammatory action, and ulceration would be the ultimate result, were it not for the compensating provision of nature, which leads to the formation of a ganglion between the capsular ligament and the skin. If, however, the pressure be still continued, it may induce inflammation of the adventitious bursa, and an inflamed bunion is the consequence; this so completely cripples the sufferer, and the pain is so excessive, that surgical aid is here usually sought, although, however, various mechanical contrivances have been proposed, and also many different kinds of plasters, the object of all being to remove the pressure which has been the original cause of the disease. No treatment can prove successful unless the great toe be restored to its natural relative position parallel with the others, and the most simple and effectual means of effecting this is the one adopted by Mr. Key; he recommends that the stocking of the patient should be furnished with a division or compartment resembling the finger of a glove, to receive the affected toe, a similar compartment being also constructed in the inside of the shoe; into these the toe passes, and is preserved in a direction parallel to that of the others; but it may be necessary before resorting to the use of this contrivance to subdue the local inflammation by the application of leeches, blisters, or evaporating lotions.

A ganglion on the dorsum of the foot or instep sometimes produces even a more serious form of the disease than the bunion. It may cause contraction of the extensor tendons of the small toes, permanently extending the latter, so that the whole of the weight of the body falls during progression upon the first phalanges, in which situation ganglia are found precisely similar to that just described as occurring at the point of the great toe. If these become indurated by neglect or continued pressure, so that the effused contents cannot be let out by puncture, the only alternative left to the surgeon is to divide the implicated tendon or tendons, so as to relieve

the permanent extension of the phalanges, and to restore the toes to their natural position. I have known exfoliations of the phalanx to occur as the result of this affection, but immediately upon the removal of the exfoliating bone the deep ulcer which had been produced in the sole of the foot healed, and the patient at once recovered. *Vide Art. "Bursal Affections."* *Part xvii., p. 131*

BURNS—SCALDS.

Mode of preventing Contraction after Burns.—Mr. Earle remarks: To take the upper extremity as an example, I will suppose a case where the whole integuments on the inner and front part of the arm and forearm have been destroyed. If such extremity be kept carefully extended on a splint, *not only during the whole process of healing, but long subsequent to the perfect cicatrization*, you will find that the cicatrized surface will diminish in a circular direction, drawing the healthy integuments together from side to side, but that no contraction will take place in the long axis, in which alone it can impede the due motions of the limb. This permanent extension should be persevered in during the *day and night*, until all changes have ceased and the cicatrix has contracted to its smallest dimensions. Care, however, should be taken during this time to give passive motion to the different joints, by which the proper secretion of synovia will be kept up, and the eventual free use of the limb will be insured. This plan of maintaining the limb in a state of permanent extension should be commenced as soon as the wound has begun to granulate.

Part iii., p. 106.

Unguentum Aeruginis in Burns and Scalds.—Recommended by Mr. Goozey as follows: The best treatment that I have found, as the first to be adopted in the above injuries, is the application of the unguentum aeruginis, spread thickly on linen and the injured parts to be completely covered with it. This ointment affords immediate relief, taking out the fire (as it is in common parlance called) sooner than any other application; and if early applied will prevent vesication.

My second application is either equal parts of olive oil and lead plaster, chalk ointment, or lead liniment. This latter I have successfully used in extensive burns as the first application, but shall now abandon it for the unguentum aeruginis, to which it bears no comparison. The formula for the lead wash liniment is as follows:

R. Superacetate of Lead, ℥ij.; Water, ℥ij.; Olive oil, lbs. M.

To be spread with a feather over the part and covered with a linen cloth, and renewed occasionally; the granulations to be touched daily with a caustic lotion. This is also an excellent application to the injuries of hands when burnt by the explosion of gunpowder.

Part iii., p. 111.

Aphorisms of Practical Surgery.—The sudden extension of the fingers when they have been long bent, as from contraction of the cicatrized integuments after a burn, is frequently followed by gangrene. The extension should therefore be slow and gradual, and we should avoid dividing or excising the bridle caused by the contracted cicatrix.

Very severe burns often induce fatal tetanic symptoms.

Part iii., p. 114.

Aphorisms of Practical Surgery.—Patients suffering from extensive and severe burns, have almost always a very constipated state of bowels. We should not be too anxious to remove this state, as it does not seem to give rise to any inconvenience, and when strong purgatives are used, a most troublesome diarrhœa often ensues.

In the majority of cases of fatal burns, the internal surface of the stomach and intestinal canal is found to be highly injected. In the treatment of severe injuries of this sort, the surgeon's attention should be directed to the condition of these parts.

Part iii., p. 117.

Treatment of Burns by Soap.—The mode in which Dr. Williamson has been in the habit of employing soap, in the treatment of burns, has not only been found to be successful, but, on account of its simplicity, and of its being at hand in cases of emergency, will no doubt be generally adopted.

A common shaving-box may always be procured, from which a good lather may, in the course of a minute or two, be easily obtained. This lather is then gently laid over the burnt surface by means of a shaving-brush, and repeated as soon as the first coat begins to dry, or the pain returns. This practice ought to be repeated occasionally during the day, or until such time as the pain is relieved. The benefit accruing to the patient is immediate, and the result of the practice highly satisfactory; for in the most superficial burns, if early applied, vesication is prevented, and, in the course of a few days, desquamation of the cuticle follows, without leaving a raw surface. Of course, this, as a remedial measure, is most applicable to superficial burns; but even in such cases as involve destruction of the more deep tissues, is not used without advantage, in so far as the personal comfort of the patient is concerned. In such cases, after a lapse of a few days, the crust formed by the soap is easily removed, so as to permit the employment of other medicines, if necessary.

Part iv., p. 101.

Treacle and Water.—Recommended in equal parts, spread on rags, and kept constantly applied, as a lotion to burns and scalds. Is serviceable in excluding air, affording relief, expediting cicatrization, and in preventing the unsightly puckering and contraction which so often follow.

Part v., p. 142.

Operation of Autoplasty for the Relief of Contraction from Burns.—Dr. Mütter makes the following observations on autoplasty: The operation which is most entitled to our confidence, especially in cicatrices of the neck, cheek, eyelids, nose, and lips, is that in which "*autoplasty*" is brought into service. In all such operations we are governed by the same principles, and pretty much the same mechanical details. They consist in:

1. Dividing the cicatrix so as to produce a raw surface, in some part of its extent; or cutting it out entirely, as proposed by Hildanus.
2. In applying to this raw surface a piece of healthy skin, taken from the neighboring parts.
3. In attaching this skin by suture to the margins of the wound in which it is inserted.
4. In approximating the edges of the wound, from which the skin has been removed.

5. In separating, by appropriate agents, the parts too closely approximated, and keeping them in this condition, some time after the flap has united.

6. In applying oleaginous frictions and motion to the new made parts to give them flexibility and softness.

Many shocking deformities from burns have been relieved by the performance of operations conducted on these principles; for example, the eye-lid, the cheek, the nose, and the lip, have all been restored.

Part vi., p. 130.

Solution of Gum Arabic in Scalds and Burns.—Amongst the various ingenious methods of protecting the injured surface from the contact of the atmosphere, in cases of scalds and burns, the application of a solution of gum arabic, from its simplicity and readiness of application, is worthy of notice. It is, perhaps, not so readily and universally obtained as the solution of common soap, or the treacle and water, yet when it can be readily and quickly obtained, it will no doubt prove equally serviceable. When the skin is not destroyed, the parts are to be repeatedly smeared over with a solution; as often as one layer is dry, another is to be applied, and this may be repeated several times. Mr. Rhind says:

In those distressing cases of the extensive burning of the bodies of young children, I would not hesitate applying the solution over the whole body, at about the warmth of 96°. It does not cool down the system by sudden evaporation, or sudden abstraction of heat, like a common cold fluid, a circumstance in most cases to be dreaded, for gum is a bad conductor of heat; neither does it preclude an exposure to moderately cool air, which seems to keep down the excessive irritation consequent upon extensive scalding of the skin.

I am inclined to think that the exclusion of atmospheric air influences very much inflammatory action, and in this way, perhaps, the gum solution checks the inflammation of the skin in burns. Inflammation caused by touching the skin with the nitrous acid and other irritants, appears to be suddenly allayed by a solution of gum arabic; erysipelatous spots on the skin seemed also, in some trials, influenced by this application. And I may here suggest, that it might be tried in the first stages of the pustules of small-pox, especially those of the face, with a view to modify their development, and prevent pitting.

Part vi., p. 145.

Nitrate of Silver. Mr. Jackson mentions its great utility in the treatment of burns and scalds, in which he had found great benefit resulting from its application, and instanced several cases of superficial burns in children, in which he found that in a very short time after its application the pain ceased, and vesication was totally prevented. In the deeper burns he uses it, not that he finds that it can produce any effect upon the charred parts, but that, as Mr. Higginbottom has said, he finds the superficial burn healed, and the extent consequently circumscribed.

The form which he uses is in the proportion of ten grains of the nitrate of silver to one ounce of water, applied by means of a camel's hair brush over every part exhibiting the slightest appearance of inflammation, two or three times a day, until the skin has become blackened; afterward only occasionally.

Part vii., p. 167.

Chloride of Soda.—Listrane strongly recommends a solution of the

chloride of soda, which, he affirms, acts as an astringent and sedative, affording rapid relief to suffering, preventing an increase of inflammatory action, and dissipating this when it already exists. The strength of the solution is to be regulated according to the irritation produced. This should be but slight, subsiding in ten minutes or a quarter of an hour. It acts far more efficaciously when the mucous substance of the skin is laid bare than through the epidermis.

Part vii., p. 212.

Creasote in Burns.—Dr. Sutro having witnessed the very valuable effects of creasote applied in cases of burns and scalds, recommends the following preparation to be kept ready under the name of "Burn Ointment:"

R. Creasot. drachmam dimidium; carbon. anim. præp. drachmam; spir. vin. drachmam et dimidium; ung. spermacet. unciam et dimidium; m. ft. ung. for adults.

This might be modified, according to age, in the following manner:—For children under five years, the ointment should be weakened by mixing it with four times its bulk of spermaceti; for children from five to ten years, with twice its bulk of spermaceti; and so on, gradually increasing the strength of the ointment, according to the age of the patient. In cases requiring protracted treatment, the dose of creasote should be gradually and carefully increased in the successive applications.

Part xi., p. 188.

Creasote in Burns—Creasote is one of the most valuable of those remedies which the ancient writers designated as *incarnatives*, i.e., promoting cicatrization.

M. Mascarpa has used it also in several cases of burns with the most satisfactory results: it soothes the pain of the injury at the time, and accelerates the subsequent progress of the cure. The best mode of using it is in the form of lotion—made by adding twenty or thirty drops of it to two or three ounces of water, and applied with pledgets of linen to the injured surface.

Part x., p. 172.

Treatment of Burns by Ammonia.—M. Guérard recommends in burns the application of caustic hartshorn; the application of cloths steeped in ammonia immediately relieves the pain, and must be continued for one hour after the accident. When the burn has produced any destruction of the skin, ammonia should not be used; but in the erythematous form, or when phlyctenæ are present, it is of the greatest advantage.

Part xvi., p. 225.

Edema of the Glottis, from swallowing Boiling Water.—*Vide Art. "Edema."*

Treatment of Burns.—According to Prof. Cooper, burns may be classed in six varieties. In the first there is just a redness of skin where the degree of heat which has been applied has not been intense, and there is little or no sloughing, and some erythema; and in a very few hours, or, at most, in a day or two, the effects will subside, and the cuticle peel off, leaving no remains of injury in the part. It is very true that even this degree of heat may produce great injury, and even danger where it is very extensive, as it suspends the functions of the skin, very much to the loss of the whole system; the pulse is quickened, the tongue red, and the mucous membrane of the alimentary canal is excited. In the second variety, the

degree of heat has been greater, the redness is darker, and sloughing more considerable, but what marks it more particularly, is the formation of vesicles, which sometimes rise immediately after the application of heat, and in other instances, within twenty-four hours afterward, contain serous fluid. In the third class, the surface of the cutis suffers, and is more or less destroyed; the vesicles attending this injury contain turbid blood and serous fluid; you may know it by the appearance of the part, it having a yellowish or light-brownish discoloration. These parts are converted into eschars, from which the patient suffers no pain, unless pressure be applied, which produces suffering by affecting the living parts between the eschar. In the fourth class, the whole surface of the cutis is destroyed, and more or less of the subcutaneous texture is injured; the discoloration of the eschars is also of a deeper color. You may observe that these eschars are stiffer than those in the preceding classes and also more brittle, and the skin around them is puckered and wrinkled. Upon the separation of these eschars, you find ulcers, from which granulations are formed, and they spread in great luxuriance; there is also profuse discharge of pus. In the fifth class of burns, the textures more deeply situated are involved, as the fascia and muscles; sometimes nerves and vessels, not destroyed, are included. The eschars are thicker, cold, black, and brittle, they are longer in separating, but when they do separate, there is a very rapid discharge of pus, and quick granulations. In consequence of the muscles being involved, their action is impeded, and it often happens that the whole functions of a limb are suspended by a burn of this kind. In the sixth class, the limb itself is turned into a black, insensible mass, as sometimes occurs in large iron foundries, where the hot metal comes in contact with the lower extremities; the foot, for instance, is placed in the groove or gutter where the hot metal runs, and is at once converted into an eschar, when, indeed, it is not at once annihilated. I need not tell you that in the former case, you must amputate the member.

The constitutional symptoms of burns may vary much; I may tell you they are divisible into two classes; those arising from the shock and irritation of the system produced by the action of heat; and those which come with the reaction that takes place, such consequences implying hectic disturbance and its usual concomitant circumstances.

A burn may be only superficial, and yet, from the extent of its surface, highly dangerous, and perhaps fatal, from the shock experienced by the system. It may produce such depression of the circulation, that you can scarcely feel the beating of the arteries of the wrist, and the whole body may be in a state of utter prostration. Now, all the danger arising from the first and second variety of burns, is in the first stage, a fact which you will take notice of, as it does not apply indiscriminately to the rest; and, if the patient get over the first stage, there is small danger to be apprehended from the rest; resolution will take place, and within twenty-four hours the danger will have passed away. Not so with burns of the third, fourth, and fifth degree; involving the deeper textures, they are not at once attended with all that constitutional danger attending burns of the first and second degree; but in three or four days, when the process commences by which the eschars are separated from the living parts, a great degree of constitutional disturbance takes place. This process may take three or four weeks for its accomplishment, but it commences within

three or four days of the injury; and that period is always one of great danger in burns of this degree. Dupuytren called this dangerous disturbance, the irritation from the injury, or, as we should say, the shock.

The second period of danger is during the inflammatory stage. The third period of danger is when suppuration is going on, and the great discharge tends to produce hectic.

The following is an abstract of the treatment which Professor Cooper recommends: Burns of the first degree, except when occurring on the head and face, or extensively on the trunk, may be treated by cold applications, or flour, or carded cotton may be applied, and suffered to remain until cleanliness, or the patient's sensations, dictates their removal. Burns of the second degree may be treated with the same applications: and if the vesicles are large, the fluid may be let out by a puncture with a very fine-pointed instrument. When burns are of the third and fourth degree, they should be treated with lime-water and oil liniment, turpentine liniment, or poultices, until healthy pus begins to be secreted, and granulations form, when a mild astringent ointment, as the calamine cerate, should be used. When there are high fungous granulations, nitrate of silver should be applied, or a powder of myrrh and calamine sprinkled on the part, or straps of adhesive plaster applied. The great point in the local treatment of burns is, to prevent the access of air to them, by keeping the parts well covered, and removing the dressings as seldom as possible. When the dressings of a large burn are to be removed, only one part of the surface should be exposed at a time. As to constitutional treatment, it consists, in the period of shock, in the administration of opium and stimulants, with external warmth; and, for children, the warm bath. When reaction takes place, it must be moderated, if requisite, by antiphlogistic treatment: opium being still however useful. Again, in the period of profuse suppuration, bark, with acids, opium and wine, together with mild purgatives, are to be employed.

* * * * *

Mr. Erichsen says: "On taking, then, a general review of the constitutional treatment of burns, it may be stated that the first object should be to relieve the system of the abnormal quantity of fluid that must have accumulated in it, in consequence of the arrest, to a greater or less extent, of so important a secretion as the perspiration. This may be accomplished either by the administration of diuretics, by guarded blood-letting, or by encouraging the process of suppuration, if it be deemed prudent to wait till this be established. Secondly, that any appearance, however slight, of the supervention of inflammation in the organs contained within the head, chest, or abdomen, should be watched with the utmost anxiety, and treated, if it do occur, as the circumstances of the case will admit. And, thirdly, that the process of suppuration should be maintained or arrested with a due regard to the state of internal organs, and the condition of the powers of the system."

Mr. T. M. Greenhow, senior surgeon to the Newcastle Infirmary, observes:

When slight and superficial, any plan will prove successful. When very extensive and deep, none will succeed in saving life, though suffering may be alleviated; and it is in intermediate cases chiefly that discrimination is required in the choice of remedies.

To slight burns, cold applications, flour, or cotton, are equally useful.

To more severe ones, apply lawn paper dipped in warm turpentine thickened with ung. resinæ; where there is free suppuration, use chalk ointment, and when the healing process goes on very slowly, apply a lotion with camphor mixture one pound, tincture of opium and solution of lead, each one drachm. Never apply escharotics. When the injury is so severe as to forbid all hope of recovery, envelop the entire person in cotton, as the most comfortable and convenient application. During the stage of shock, give stimulants and opiates; afterward liberal diet and quinine.

Mr. Downing recommends to apply flour of the best quality with a "dredger," and allow it to "cake," when detached, repeat the process till a healthy surface is left. When the burn is on the back, keep the flour in apposition by means of long flakes of carded cotton applied round the waist. Treat the ulceration remaining after severe burns by cer. calaminæ, except on the hands and face, where the use of flour may be continued.

According to Mr. Higginbottom, we should make the surface as clean and dry as possible, remove any vesications or loose cuticle; then apply, with a small sponge, secured to the eye of a silver probe, a concentrated solution of nitrate of silver (arg. nitr. ʒiv. acid. nitric. gtt. vj., aq. destil. ʒiv.) so as to form an adherent eschar. If on the back, after applying the nitrate, cover with plasters of ung. plumbi comp., and dress every third or fourth day. Reapply the nitrate, if the eschars fall off too soon.

Dr. H. Barker, as dresser and house surgeon under Mr. Liston, used to apply the best flour with a dredger, as above described, and when the caked masses came off, apply wetted lint and oiled silk. If cicatrization is tardy, use a weak solution of sulphate of zinc, instead of water; and if there are exuberant granulations, rub them lightly with a piece of sulphate of copper. Muriate of morphia is the best anodyne.

Mr. Newnam, of Farnham, thinks the dressing by cotton more useful than by flour, "because it more effectually covers and protects the exposed nerves." When the sensitive nerves of the skin are exposed to any great extent, he thinks a fatal result inevitable.

Dr. G. Black, of Torquay, remarks that the great point in the treatment of burns with cotton wool, is *never to remove* that which covers the surface of the sore: he says "the outer portions which are saturated with the discharge may be cut off, and clean applied, but that covering the wound never."

Part xvii., pp. 189-193.

Burns—Contraction from.—[In this case, in which there was extensive contraction of the integuments on the front and side of the neck, Mr. Grantham divided the cicatrix thoroughly. And afterward.]

The treatment consisted in the application of folds of lint dipped into hot water, and secured by a roller passed round the throat, over the head, and under each axilla, at the same time securing a layer of wool wadding over the wound, so as to maintain a temperature of the wound equal to the temperature of the adjacent integuments. This dressing was continued, varied only occasionally with zinc ointment, for upward of two years, a period no doubt, seeming long to those who may not have expe-

rienced the great difficulty of healing such wounds as have the derma imperfect. As is my usual practice where there is much purulent discharge, I endeavored to support the patient on a milk diet, the utility of which practice has been attested in the cure of the most extensive burn ever published in the annals of surgery—in which case is also proved the necessity of maintaining an equilibrium of animal heat, with a firm and easy pressure on the granulating surfaces, believing, as I do, that these two principles are the chief essentials as external agents, in the healing process of wounds generally. I wish this remark to be understood as only applicable after the reaction of the part has taken place, and all dead portions removed by exfoliation. *Part xviii., p. 236.*

Contraction from Burns, cured by Division of the Cicatrices.—Mr. Whitehead brings forward this case as an example of the good effects (apparently permanent, for the case remains in a satisfactory state at the end of four years) of careful division of the contractile tissue of the cicatrix.

The right fore-arm was immovably contracted upon the arm to the degree of an acute angle, in which posture it was maintained by a web of cicatrix extending between the distal extremities of the two portions of the limb, and occupying, of course, the whole intermediate space. The corresponding limb was similarly fixed, the displacement being, however, less considerable. The skin of the neck was also deeply furrowed, and the head distorted. At this time (14 years after the accident), the head was dragged down to the right side, and the right arm rendered almost useless. Mr. Whitehead says:

The fibrous band subtending the angle at the elbow-joint, was equal in thickness to and tangibly as firm as, the tendo Achillis. The first operation was performed upon the neck, the incision commencing below the ear, the lower part of which organ was merged in the folds of the cicatrix; it was thence continued below the line of the jaw to a point opposite the middle of the chin. Division of the skin simply appeared to afford no relief whatever to the distortion, there being immediately beneath numbers of bands of a bright fibrous aspect, which effectually prevented the parts from resuming their natural position. These being successively divided with the bistoury upon a grooved probe, and the head raised, other sets presented themselves to view, which, when extended, still produced a tractive effect upon the cicatrix below. Bundle after bundle was in turn dragged forward and divided, from one extremity of the wound to the other, until caution suggested a cessation. The wound, which appeared dreadfully large, was cleansed and covered with simple dressing; it was quite healed in four weeks.

The relief afforded by the above operation encouraged confident hopes of a successful issue from a like procedure upon the arm; this was accordingly practised. The bistoury was plunged through the structure at the angle of flexure, as close upon the joints as safety to the neighboring parts would admit, and thence carried forward, emerging at the free edge. But this incision, which might, *a priori*, have been looked upon as all that was necessary, constituted comparatively but a small share of the operation. The divided parts immediately retracted considerably; but when extension was attempted, even but to a limited degree, a number of shining fibrous bands started forward, completely hindering further move-

ment. These were also divided and extension again attempted, when others of similar character were brought into view, occupying an elevated position in front of the joint, and opposing like resistance. In this manner successive groups of fibres had to be separated, layer after layer, before the limb could be brought into a straight line, which was not accomplished until all the deep-seated bands reaching across the joint on each side of the large vessels, and outward toward the condyles, had been completely divided, including, of course, the fascial insertion of the biceps muscle. During the operation, the median basilic vein was accidentally wounded; this it was found necessary to ligature on each side of the puncture, before further steps could be taken.

The wound, which measured eight or nine inches in the long direction, and upward of four inches transversely, was cleaned and covered with simple dressing and a bandage. A splint was applied to the back part of the limb on the fourth day, but this appeared unnecessary, as there was no difficulty in easily maintaining an extended position; the apparatus was altogether abandoned at the end of three weeks, and never afterward required. The wound was completely cicatrized in six weeks. About three months afterward, I divided, in a similar manner, the cicatrices bounding the axilla, on the same side of the body, with nearly equal success.

The successful issue of the operation was undoubtedly attributable, mainly, to the *perfect* division of *all* the facial fibres traversing the elbow-joint anteriorly from the arm to the fore-arm, or at least, *all* that could be exposed with safety. It is not a little remarkable that the elbow-joint which had been almost totally unused for twelve years, appeared in no way injured, as no pain was complained of, nor difficulty experienced, in the attempts that were made to move it. The limb is now plump and well shaped, and apparently as strong and useful as though it had not been materially injured.

Part xviii., p. 237.

Burns and Scalds.—In burns and scalds of the first and second degree, apply solution of nitrate of silver as directed for erysipelas. See "Erysipelas."

Part xxi., p. 250.

Employment of Charcoal.—For the suppurating sores which follow extensive burns, one of the best applications is powdered charcoal. If the burn is on the back, the charcoal may be freely strewed over the bed.

Part xxi., p. 260.

Contraction from Burns.—When a web of cicatrix exists in the axilla, or between the fingers, or in similar situations, pass a needle carrying a skein of silk through the base or proximal extremity of the web, and allow the silk to remain as a seton. When sufficient inflammation and induration has been excited, the web may be divided in the usual way with great hope that the contraction will not return.

Part xxi., p. 263.

Scalds and Burns.—If there be the feeling of burning heat in the part, we can understand how cold applications would be grateful, and how the case would get well, even though they were not the best, for the powers of the nervous system would, in this case, be intact. But no one would recommend the continued application of cold to a patient laboring under the depression attendant upon a severe burn. It has been held that external applications do good by excluding atmospheric air; but the injury arises

not from the irritation of the *air as air*, but from its coldness. Warm air soothes and is beneficial. It is from their effects in soothing the nervous irritability of the injured part, by preserving the nerves from feeling the variations of temperature in the currents of the air which would act upon the surface, that such applications as cotton, treacle, flour, etc., are of such great value.

Part xxiii., p. 333.

Use of Collodion in Burns.—This fluid, when applied to burns, promotes healing and prevents suppuration. Blumhardt has tried it, with great success, in three cases, one of them caused by explosion of gunpowder, and two by the ignition of spirits of wine, where the breast, neck, face and hands were all severely scorched. Collodion was applied to the skin an hour and a half after the accident, by a hair pencil; the redness, pain and swelling were thereby diminished, and the patients soon experienced no inconvenience save the tension occasioned by the firmly adherent pellicle. The inflammation completely subsided and the recovery was rapid.

Part xxix., p. 251.

Deformities from Burns.—The chief attention ought to be paid to these cases just at the time when they are most usually withdrawn from treatment; it is then that splints, bandages, and other mechanical contrivances should be resorted to and rigidly persevered with, in order to preserve the part or limb in its natural position. Operations for the relief of these contractions generally fail, because the surgeon's attention has been directed more to the cicatrix itself than the newly-formed structure underneath, which is really the active agent in the production of the contraction.

Part xxxiv., p. 200.

Burns and Scalds.—Having cleansed the parts, and punctured the vesications, paint over the entire surface an application of two parts of collodion and one of castor oil, which repeat three or four times the first day, so as to form a covering entirely excluding all contact with the atmosphere. When suppuration sets in apply a linseed poultice over the whole surface, and when the slough has separated, an ointment, composed of an ounce of prepared chalk, two drachms of olive oil, and half an ounce of spermaceti ointment, spread on lint. The above is an outline of the treatment at present pursued at King's College Hospital.

Part xxxvii., p. 179.

Gunpowder Burns—Treatment of.—When a charge of powder is fired near an exposed part of the body, a portion of the unburnt powder is deposited in the skin, proportionately to the imperfection of the combustion and the coarseness of the granules. The inflammation which results is not sufficient to procure the elimination of the grains, and the person remains tattooed for life. Hitherto the only means for preventing such a deformity has consisted in the picking out by the fine point of a knife or needle each separate granule. This, though a very tedious and painful process, answers well enough in burns of a limited size; but in a recent case, in which the whole side of the face was completely blackened, Professor Busch resolved to try a plan he had seen Hebra adopt for the removal of freckles, viz., exciting an eczematous inflammation by means of a solution (5 gr. ad 8 oz.) of corrosive sublimate. This was kept applied during several hours for five days, with the effect of exciting a smart eczema, and detaching the

granules. The burn was quite recent, and whether the means used is applicable to burns of an older date, remains to be tried.

Part xxxix., p. 332

BURSAL AFFECTIONS.

Treatment of Enlarged Bursa Mucosæ and Synovial Sheaths of Tendons.—Professor Williams, of Dublin, has cured several cases of chronic tumors of the bursa mucosæ and synovial sheaths of tendons "by the subcutaneous division of the sac of the tumor and the subsequent application of pressure."

A cataract needle was passed into the tumor (an enlarged bursa over the knee), and the entire thickness of the sac divided by several parallel and longitudinal incisions. A portion of the fluid escaped into the cellular tissue, but the greater part found exit externally on the withdrawal of the needle. The knee was then strapped with adhesive plaster, and the limb kept at rest.

Part iii., p. 86.

Enlarged Patellar Bursa dispersed by Subcutaneous Incision.—An incision, to the extent of one-eighth of an inch, was made along the outer margin of the tumor; then a very small bistoury was introduced obliquely into the cyst, at such a distance from the superficial cutaneous incision as prevented the escape of the fluid.

The sac was then cut in several places, chiefly on the anterior surface, and the instrument withdrawn, all the fluid having been evacuated.

A small compress was then applied, and several straps of adhesive plaster, and a roller which extended from the toes to the knee.

A splint was also applied, which extended from the middle of the back part of the thigh to the same point of the leg.

If the incision, or rather puncture into the sac, be made with care, the internal surface of the cyst then cautiously scored after it, the fluid evacuated by firm pressure, so as to prevent the ingress of air into the cavity, no danger need be apprehended of unpleasant effects succeeding to this measure.

The only instances in which the subcutaneous incision might fail, are those where the sac is much thickened, its interior loculated, and the cells filled with a thick gelatiniform substance; still, in such instances, it is a means which should be kept in view.

Part vi., p. 150.

Patellar Bursa.—In some cases of enlarged bursa we may adopt all the usual and simpler modes of treatment, and fail in dispersing them, or the treatment may be so tedious as to weary the patience of both surgeon and patient. We may blister and compress them, or pass a seton through, or make a valvular opening into them, and, after letting out the fluid, massage the inner surface of the sac, or we may extirpate them with the knife. One of the best and safest plans of treating these bursæ is by blistering them, or by using the tincture of iodine as a counter-irritant. Where they are small, as over the wrist, the fluid may be let out with a needle and compression applied. In a case of inflamed bursa of the patella, in which the usual treatment had failed, Mr. Hale Thompson cut down upon it, and

carefully dissected it away. The coats of the bursa were at least a quarter of an inch thick.

Part viii., p. 188.

Bursal Swelling of the Wrist and Palm of the Hand. Division of the Annular Ligament.—Prof. Syme gives the following case:

J—P—, aged 20, was admitted on the 13th of February, complaining of pain and weakness in her left hand. The wrist and palm of the hand were much swelled, but not discolored, and pressure on these parts caused distinct fluctuation, with the jarring sensation that characterizes effusion into the bursal sheaths. She stated that pain had been first felt about two years before, and that for the last twelve months she had had hardly any use of the hand, in consequence of the swelling, and weakness attending it. I made a free incision from the wrist into the palm of the hand, dividing the annular ligament. This gave vent to a quantity of glairy fluid, with many small flat cartilaginous-looking bodies, and exposed to view the flexor tendons, separated and surrounded by thickened bursal membrane. The cavity was filled with dry lint, supported by a bandage moderately compressing the hand and wrist. In the subsequent treatment, care was taken to prevent protrusion of the tendons, by drawing the edges of the wound together, and applying a compress over the seat of the annular ligament. Not the slightest disagreeable symptom followed the operation, and three days after it the patient was able to sew, which she had been prevented from doing for many months previously. In the course of a few weeks the wound healed, and the limb was in every respect perfectly sound.

Part x., p. 160.

Bursal Swellings of the Wrist and Palm of the Hand.—Till lately, incision, followed or not by the use of the seton, was the chief mode practised for the cure of enlarged bursæ. Dupuytren contented himself with merely slipping a seton under the annular ligament, but the effects were much the same as the former mode. Mr. Syme more lately proposed making a free incision into the bursa and through the annular ligament. He has related one case treated in this way, but it is evident that even this is not free from danger. A new mode of treatment is now proposed by two Parisian surgeons.

On the one hand M. Gerdy has tried subcutaneous puncture, preceded and followed by the application of leeches and methodical pressure; the result has been successful, but we cannot state whether or not there has been relapse, the patient having left the hospital before there was sufficient time to ascertain if the cure were permanent. On the other hand, M. Velpeau has been trying injections with iodine, and has obtained speedy cures, free from all accidents. Others have followed the practice, and have had reason to be satisfied with it. M. Chassaignac informs us that he has cured one case by this method, and has operated on another.

The case is that of a man, aged 40, who for some years has had a double tumor on the palmar surface of the right hand; it is fluctuating, and without change of color on the surface. One of these tumors, of the size of an egg, was above the annular ligament; the other, of the size of half an orange, was situate in the palm of the hand. The fingers could not be extended; on pressing alternately on either tumor, that sensation of jarring peculiar to hydatid cysts was not present; but this negative character arose from the circumstance of the two tumors not freely communicating,

in consequence of which the displacement and friction of the corpuscles on each other was prevented. The hydatid bodies, however, may be altogether wanting, but this does not in any way change the nature of the disease; besides, they are sometimes present in small quantity. In the case there was no doubt of the true nature of the complaint. M. Chassaigne operated in the following manner: After causing the tumor to project, by means of lateral pressure, he plunged a trocar into the palm of the hand; a small quantity of viscid fluid escaped. By means of strong pressure on the two tumors a prodigious number of hydatid corpuscles escaped through the canula; several of these were larger than the diameter of the instrument, which proved them to be elastic and compressible. Examined by the microscope, these productions appear to be true hydatids with vesicular bodies, and not merely those hard, simple, albuminous concretions usually found, which would lead us to believe in the existence of two varieties of these tumors, the one truly hydatid, the other ob-lydatiform. After having completely emptied the tumor, M. Chassaigne washed out the sac twice or thrice with warm water; he then injected a solution, composed of one-third tincture of iodine and two-thirds of water. After allowing it to remain a few minutes, the fluid was completely withdrawn. It was remarked during the process of these injections that the subannular opening serving as a communication between the two sacs was very small, so that the fluid passed from the palmar sac into the superior only when the former was full; and this appears to explain the obscurity of the fluctuation between the two sacs. The tumors were again filled a few days after the operation, but in a much less degree.

M. C. is of opinion that the cure will be effected by spontaneous absorption of the fluid, as in hydrocele; and he founds this opinion on a case he lately observed, in which there was a large serous cyst in the left groin; the tumor reappeared after injection with iodine, but was gradually absorbed; in its latter stage the tumor felt like a compact knot, but at length entirely disappeared.

At the last scientific congress in Italy, a case was communicated by Gherini, surgeon to the great hospital at Milan, of a large bi-lobular hydatid cyst, situated at the posterior part of the elbow, cured by incision alone, and from which there escaped fifty-two barley-shaped corpuscles. The sac suppurated, it is true, but the cure was complete, without any unfavorable symptom. The bi-lobular form in this case was remarkable from the absence of the annular ligament, which is sufficient to account for it, at the wrist; it may be also remarked that the barley-shaped concretions are not confined to the latter region. Gherini states that he is certain that neither of the cavities communicated with the articulation. The extraction of the hydatid corpuscles is, of course, essential to the cure of these affections.

Part xii., p. 248.

Treatment of Effusion into the Bursa Patellæ.—Effusion into the bursa patellæ is a very common affection, familiarly known by the name of "housemaid's knee." In its usual form the effused fluid is pellucid, and the walls of the sac are thin. Having remarked on the division into vesicular, or cyst-like, and vaginiform, or complicated bursa, Mr. Johnson proceeds:

The former compose the majority of the subcutaneous bursa; the latter are bound up with tendons. They are especially seen in connection with

the flexor and extensor tendons on the wrist and ankle, are of considerable extent, imperfectly divided into several compartments, and placed beneath the annular ligaments and fascia, so as to plunge deeply amidst the tendons of the limb. It is obvious that inflammation in the vaginiform bursæ is a very different affair from inflammation in the simple ones. In the latter, if suppuration ensues, it is superficial, accessible, limited, or if it escapes the precincts of the bursa, it is into the subcutaneous cellular membrane. In the former, the inflammation is in a larger cavity and involves a deep and inaccessible one; if suppuration ensues and is confined within the bursa, it is still deep and hard to be got at; but if it extends, as it is apt to do, among the neighboring parts, it is in the deep cellular membrane, stretching under the fasciæ and between tendons and muscles, where it defies the most skillful and daring surgeon.

Need it be said, that suppuration of the vaginiform bursæ is a thing to be religiously avoided, that it is always dangerous, and too often fatal. Mr. Johnson warned the pupils against puncturing these bursæ, or resorting to any measures calculated to give rise to inflammation in them. He mentioned some cases illustrative of the dangers of operative interference with them, and deprecated it in the most earnest terms. At the same time he advised, if suppuration did occur, as prompt and as bold an opening as could be ventured on. The principal object, however, of this report, is to point out the advantage of puncturing the subcutaneous vesicular bursæ, especially that on the patella, when enlarged from simple increase of secretion, without much inflammatory action, or consolidation of their walls. The plan adopted by Mr. J. consists in introducing a grooved needle, perpendicular to the surface, into the cavity, the bursa being rendered prominent and tense by properly directed pressure. The needle having entered the cyst, its convex side is kept pressed against the sides of the opening, which, of course, tends to free the groove from obstruction, and to render the channel more patulous. The exit of the fluid is assisted by maintaining firm compression on the swelling, and holding the handle of the needle low, so as to direct the stream downward. In this manner, without pain, and with great rapidity, the bursa is emptied of its fluid. A dose of senna is directed to be taken immediately, its repetition is prescribed as circumstances may require, and the patient is ordered to apply a blister to the knee the same evening, and is cautioned against more exercise that day than is absolutely indispensable.

In slight cases, one puncture, and a blister or two, followed by strapping and a bandage when the effusion has nearly disappeared, are usually sufficient for a cure. But when the case is of longer standing, or the disease has proceeded further, a repetition of these means is required.

Part xii., p. 250.

Treatment of Bursal Disease of the Knee Joint.—[Mr. Skey's remarks relate to that form of disease which affects the bursa placed anterior to the patella, and the ligament below it, commonly known under the title housemaid's bursa. The bursal disease of the knee presents itself for treatment in the form of a general swelling of the sac, containing serous or puriform fluid. If unattended with pain, the contents will probably be serous merely, and the tumor soft. It is in this stage that blistering may be objectionable. As the disease advances, the mass consolidates by repeated attacks of inflammation, more or less acute, till the swelling be-

comes a large tumor of nearly solid consistence. As to the communication of bursa with the contiguous joint, any operation, in such case, would be very objectionable. But such communications are exceedingly rare, as can Mr. Skey call to mind any example of the kind, except that between the tendons of the subscapularis and the shoulder joint, which might rather be deemed an extension of the synovial membrane of the joint under the tendon.]

When not communicating with a joint, they may be opened without danger in all situations and in every stage. The effect of a seton is like that through a hydrocele or ranula, viz., the secretion is absorbed without being discharged by a wound, and the sac is obliterated. In a hard and consolidated form of the disease, it breaks down into a common abscess, which, when punctured, discharges its contents and heals. Pass the thread (common silk) through the centre of the tumor, and keep it in until the end is accomplished. If inflammation supervene, remove the thread, foment or poultice; when sufficient inflammation has been set up, it is indicated by the oozing of pus from the puncture, and may be continued four or five weeks. If the morbid bursa be too deep for the application of the above treatment, injection and pressure may be used.

For ganglions or adventitious cutaneous cysts, puncture with the lancet is a less painful and more certain remedy than a blow. Let the puncture be no larger than to evacuate the contents of the cyst. Bind down the part afterward with a pad of lint and adhesive plaster, to promote the obliteration of the cyst.

Part xiv., p. 151.

Bursa, Diseased.—Dr. Adams recommends to make a longitudinal incision from above downward, throughout the whole extent of the bursa; inspect the cyst, and detach any small adherent bodies where the cyst is thick and capacious, and bulges from the incision, remove an elliptical portion. Introduce an oiled dossil of lint as a dressing, and apply light compresses and a bandage. When suppuration is fairly established, apply poultices if necessary. The advantages of this method over puncture, subcutaneous incision, injection, seton, extirpation, etc., are: 1. It is easily and quickly done. 2. It is less painful. 3. It produces little or no constitutional disturbance. 4. It is more satisfactory in its results, producing a radical cure, and removes all foreign bodies at once.

Part xiv., p. 152.

Consolidated Bursa.—Rub in a strong solution of iodine, and cover the part with lint and sticking plaster, to prevent the volatilization of the iodine.

Introduce a seton of eight or ten threads, and poultice.

Part xv., p. 172.

Acutely Inflamed Bursa.—Keep the limb quiet and in an elevated position, apply poultices, and rub in the tartar emetic ointment combined with mercurial ointment.

Part xv., p. 174.

Treatment of Enlarged Subcutaneous Bursa.—When matter has formed in them, the only means is the evacuation of the fluid by a free opening: this is unattended with danger, and followed by a rapid and complete cure. When, however, the bursa is recent, the skin thin, and the fluid probably a mere increase of the natural secretion of the cavity,

the employment of blisters, or the external application of the tincture of iodine, is the best means of lessening the swelling, but it will probably return. For a complete cure, or in those cases where the swelling does not yield to the application of blisters, or to the external application of iodine, more especially if the swelling be not large, the best plan of treatment is to introduce a fine thread through the swelling, and use it as a seton. On the second day, this thread generally causes considerable pain, and requires withdrawal. A small quantity of puriform fluid passes, for a few days, through the opening, after which the swelling gets gradually less, and contracting, is completely cured. Very frequently the bursa suppurates so freely as to require a free opening, the hole for the thread having closed. Although this is an extra source of pain, yet the cure is more complete, and quite compensates for this accident. Removal of bursæ simply for their inconvenience is a serious matter.

Part xv., p. 175.

Death following the Removal of a Bursal Tumor from the Patella.—Dr. Smith relates a case of the above description which terminated fatally from the supervention of erysipelas. It is this circumstance which has determined many surgeons to be very chary about using the knife in cases of diseased bursa of the patella. Mr. Samuel Cooper, in his "First Lines," says: "We ought not to open bursæ mucosæ without a real necessity for it, for we occasionally hear of cases in which patients lose their lives in consequence of the limb being attacked with phlegmonous erysipelas."

Part xv., p. 175.

Vaginal, or Deep Bursæ Mucosæ.—Mr. Coulson explains his meaning of the term "deep bursæ mucosæ" to be the synovial membranes, usually vaginiform, interposed between two or more tendons, between tendon and bone, or between tendon and ligament, for the purpose of protection from the effects of friction, and for facilitating motion.

In the treatment of tumors of these synovial sacs, the plans recommended for their cure have been extirpation; incision, either simple or combined with irritation of the surface of the cyst: subcutaneous puncture; and iodine injections. Mr. Coulson has generally contented himself with incising the tumor longitudinally, and evacuating the contents. Some amount of inflammation ensues, with obliteration of the cavity, but sometimes the inflammation proves very severe, inducing great constitutional disturbance, and in some cases even death has ensued from the attack.

Part xxiv., p. 172.

Treatment of Bursal Tumors.—In a case of enlarged bursa over the wrist joint, after the usual vesicant and stimulating applications had been employed with no good effect, Mr. Stanley made a free incision into the swelling, the glairy fluid was evacuated, tents of lint were introduced into the wound, and the whole hand enveloped in a poultice. In the common *enlarged bursa patellæ*, perhaps the best plan is to draw off the contained fluid by means of a small trocar, then apply a small blister or a strong solution of iodine, and ultimately support the part with a mercurial plaster and bandage. The practice, by means of setons, of converting these enlargements into acute abscesses, very often produces disagreeable consequences, and it would appear that recently formed cases are especially ill adapted for this mode of treatment. The most suitable are, perhaps, the

very chronic ones which have resisted ordinary measures. In all cases of enlarged bursa where the knife is resorted to, it is important to remember that the incision can scarcely be too free. *Part xxvi., p. 121.*

Enlarged Superficial Bursa and Ganglion.—Make a free incision in the bursal tumor and let out the contents, and then apply a strong solution of iodine by means of a camel's hair pencil to the interior of the sac. Insert a strip of lint into the wound, and keep it there, so that inflammation and suppuration may ensue and the cavity be obliterated. *Part xxvi., p. 122.*

Bursa of Flexor Tendons of Wrist.—This affection sometimes renders the fingers quite useless; its removal was formerly considered impracticable. It may be cured easily and certainly by making an incision about an inch or a little more in length, through the integuments and subjacent textures, including the annular ligament of the wrist. *Part xxvii., p. 132.*

Inflamed Bursa of the Patella—Evacuation of the Fluid.—This patient presented herself with effusion in the bursa of both knees; the distension was considerable and painful, and distressed the patient very much, wholly incapacitating her for her usual avocation. She was in good general health, but rather plethoric. Mr. Cooke having introduced the grooved needle, at the same time rotating it, and pressing gently upon the swelling, an ounce and a half of unctuous, synovial-like fluid was obtained from one bursa, by which procedure it was totally emptied. A bandage was applied very lightly, and she expressed herself as being much relieved by the tapping. A blister was ordered to be applied the same evening to the knee, and the patient desired to take a purgative. The other dropsical bursa was subjected to the same treatment.

At the end of a month the patient returned to her occupation, with caution always to use a pad when kneeling.

If a stumous or otherwise unhealthy tendency exist, a second tapping and blistering are occasionally required, with the addition of the application of iodine ointment to the blistered surface, and of course, if necessary, constitutional treatment. *Part xxix., p. 184.*

Housemaid's Knee.—There is no form which this disease assumes that is not amenable to treatment, by means of a single thread of silk passed through its centre. Sooner or later (from two to ten or fifteen days), suppuration in the cyst will follow, and the case assumes the form and character of an ordinary abscess, which the lancet will effectually relieve. *Part xxxiii., p. 147.*

Enlarged Bursa.—Mr. Coulson, of St. Mary's Hospital, believes—even when bursæ are inflamed, and the skin over them red, instead of making any incision into them it is preferable merely to puncture them with a grooved needle. After evacuation of the contents, apply pressure by means of soap plaster and bandage, renewing this from time to time and repeating the puncture of the sac also if necessary. The result is generally a safe and permanent cure. *Part xxxvii., p. 269.*

CACHEXIA.

Cachexia.—In the treatment of that class of cases so frequently seen in children, characterized by large heads, tumid bellies, and pasty com-

plexions, nothing is so efficacious as a simple combination consisting of from five to ten grains of phosphate of lime three times a day, in chalk mixture. Where there is palpable anemia, some simple chalybeate must be added.

Part xxxvi., p. 39.

Cachexia Eczematosa in Children.—*Vide Art. "Skin Diseases."*

CÆSARIAN SECTION.

Case of Cæsarian Section.—Mr. James Whitehead gives the following description of the steps of this important operation. In a consultation of several of his professional friends, regarding the subject of the following operation, Mr. W. stated his opinion to be, that the greatest available space at the upper aperture of the pelvis, in its antero-posterior diameter, was not more than one inch and a quarter. In this opinion, several who had also seen the patient before, fully coincided. It was with great difficulty, however, that an efficient examination could be made, as the contraction in the cavity of the pelvis, and at its outlet, precluded the introduction of the hand to a sufficient extent. The tuberosities of the ischia were found to approach anteriorly to within a very short distance of each other, and the outlet was much encroached upon by the apex of the sacrum, which had advanced considerably toward the arch of the pubes. After each had again made a careful examination, the conclusion was, that the dimensions of the pelvis were too small, not only for instrumental interference by the natural passages, but also for the fragments of the fetal cranium to pass, had perforation and separation of the bones been practicable. The Cæsarian section was therefore decided upon, and recommended to be performed without delay.

Catheterism, and other necessary preliminaries, having been attended to, the patient was placed upon her back, her shoulders a little raised on pillows, and the knees flexed over the edge of the bed.

Mr. W. placed himself in the kneeling posture. Assistants were stationed to keep her still—supply instruments, sponges, etc.

The external incision was made in the line of the uterine axis, commencing about four inches above, and extending nearly the same distance below the umbilicus, and running a little obliquely from within outward; its upper extremity being half an inch, and its lower an inch and a half to the left side of the linea alba. A short incision was first made through the whole thickness of the abdominal parietes, which were extremely attenuated, and continued by means of a director and probe-pointed bistoury. The cut into the uterus corresponded in direction with the external one, and was about seven inches long. A small incision was first made with the scalpel, and continued with the probe-pointed bistoury, the fingers being used to direct it instead of the grooved probe. The placenta being attached at this part of the womb was immediately torn through with the fingers, and the child and it extracted without the slightest difficulty. The uterus, the parietes of which, in its distended state, were not thicker than shoe-leather, immediately contracted to the size of a child's head, and its walls became about three-quarters of an inch in thickness. Some of the small intestines now protruded at the upper part of the

wound, but were immediately replaced, and held in. The parts were then spouted, the external wound brought together, and secured by six interrupted sutures, adhesive plaster in long straps, and a broad, circular bandage. The lower fifth of the wound was left uncovered by adhesive plasters, in order to allow any discharge to pass freely from the interior; a piece of spread lint, and a fold of the bandage being all that was thought necessary at this part. The loss of blood amounted to about eight or ten ounces; it issued principally from the placenta while being torn through. There was very little discharge, indeed, scarcely an ounce of blood from the divided edges, either of the abdominal parietes or the uterus.

The woman bore the operation almost without a murmur, and said she had not suffered more than she should have done from two or three ordinary labor pains. The child, who was alive and healthy, was extracted in less than two minutes after the first incision was made, and the whole operation completed, and the patient in bed, in twelve or fifteen minutes after the commencement. The pulse was not materially affected, and the patient was lively and talkative directly after being put to bed. A quarter of an hour after the operation, which was nine o'clock, P.M., three grains of solid opium were administered, and directed to be repeated every four, five, or six hours. She passed a comfortable night; slight uterine pains came on three or four hours after the operation, and she had some lochial discharge at the same time *per vias naturales*. There has been a little oozing from the lower part of the wound.

[For some time the case seemed to be going on favorably, but eventually ended fatally, thirty-two days after the operation.]

Part iv., p. 122.

Cæsarian Section Successfully performed.—A woman, thirty years of age, had already been three times delivered by means of the perforator and crotchet. Pregnant for the fourth time, and having suffered extremely from the 12th to the 15th of August, without a prospect of the head passing the pelvis, the patient consented to the Cæsarian operation, which had been proposed to her early in the course of the 14th. The operation was done in the usual way, in the linea alba, and the only difficulty experienced was in disengaging the head from the isthmus of the pelvis, into which it was firmly wedged. The child, when sprinkled with cold water, began immediately to cry, and moved freely. The mother declared the pain of the operation nothing, when compared with the suffering she had already endured. It was begun and completed in a quarter of an hour. 16th.—Belly distended with flatus; some pain; no fever. A suppository was followed by the discharge of much flatus, and complete relief to the pain. A little soothing electuary was all the medicine that was prescribed or required. The mother nursed her child, and in four weeks was going about her ordinary household affairs.

Part vii., p. 182.

Cæsarian Section.—A woman, aged thirty-one, who had borne five children naturally, was attacked with violent arthritis, during her sixth pregnancy. The pelvis became so deformed that the finger could scarcely be introduced between the tuberosities of the ischium and the ascending rami, on either side; the pubes also formed a very prominent angle, the sacrum projected much forward, and the os uteri could not be reached.

On the 27th of July, 1810, labor having commenced, and the contraction of the pelvic diameter being well ascertained, the Cæsarian section was determined on, and was performed in the linea alba by Dr. Arnoldi. The results were most fortunate: the mother nursed the child herself, and the wound healed by the beginning of September.

Part viii., p. 168.

Cæsarian Section.—At a meeting of the Royal Medical and Chirurgical Society, Dr. Lee, after enumerating many cases, all of which showed the dreadful fatality of this operation, dwelt on the great advantage to be derived from the induction of premature labor in such cases, as proved by the experience of the best midwifery practitioners. Dr. Lee himself induced it twelve times in one woman, with perfect safety; and had read that morning an account of fifty other cases similar in result. Dr. Merriam remarks, respecting the induction of premature labor, that nothing is more easily done, and that it renders the Cæsarian section unnecessary and unwarrantable. Dr. Lee, in continuation, observed that Dr. Denman mentions a whole family in the Strand born by this process, and remarked that it is not a thing well known, viz., its induction in cases of high distention.

He said, in cases where the pelvis was so much distorted that the child could not pass at the seventh month, labor should be induced at the fourth or fifth; for that it was consistent with reason and humanity to preserve the life of the mother and produce abortion. He (Dr. Lee) did not consider pelvic deformity the only case applicable to this line of practice, but also cases where tumors or cicatrices obstructed delivery as well as in cases of organic disease of the heart. Dr. Lee said his object was to show the society that the operation of inducing premature labor was both safe and easily performed.

Part xxiii., p. 232.

CALCULI.

Solution of Urinary Calculi.—Dr. Charles Petit has made numerous experiments on the solvent powers of the waters of Vichy over urinary calculi. The result of these researches is, that calculi of uric acid, and of the ammoniaco-magnesian phosphate, when placed in this mineral water, lose, the first 53 per cent. and the last 60 per cent. of their weight. The loss is in the inverse ratio of their hardness and their cohesion. A very important result, however, is that the calculi of the ammoniaco-magnesian phosphate suffer from this mineral water a true disintegration of particles, and become more friable. M. Berard has repeated these experiments, and arrived at the same conclusions. Numerous experiments were also performed on patients afflicted with various calculous complaints, the result of which was highly satisfactory. Those afflicted simply with gravelly complaints were, by the use of the mineral water of Vichy, relieved of all their uneasy feelings, and the formation of calculi was prevented. In those, again, who presented all the usual symptoms of urinary calculi, but the presence of which were not ascertained by sounding, the waters of Vichy caused the expulsion of gravelly detritus, speedily followed by the disap-

pearance of the symptoms of stone. In those in whom a urinary calculus of considerable dimensions was ascertained to exist by sounding with a catheter, the use of the mineral water appeared to cause a diminution of its volume; a fact, in one case, ascertained by an examination after death. It may be stated, that the waters of Vichy consist of a pretty strong solution of carbonate of soda in a water highly charged with carbonic acid.

Part i., p. 71.

New and Natural Method of Removing Calculi from the Bladder.—The method now proposed, is to furnish a defensive sheath to the inner coats of the urethra, so as to admit of its distention by instruments gradually increased in size, by which means the greater number of cases of calculi may be relieved without any further operation; whilst others, in which the stone is large, will admit of the easy application of the instruments of lithotomy.

The method in question consists in introducing a portion of the intestine of some animal upon a curved tube or catheter, which is open at the extremity, but fitted with a flexible metallic stilet, having a rounded head, which serves both to direct the instrument and keep the sheath in its place till it enters the bladder. Attached to the stilet is also a piece of gut-skin, which falls over the end of the instrument. The stilet is then withdrawn (which releases the sheath), and afterward the catheter, and one of larger size is introduced. The sheath, remaining in the urethra, is so exceedingly smooth and slippery, that it gives a facility to the use of large instruments—guarding the tender coats of the urethra against all irritation, and allowing it thus to be dilated by the successive introduction of instruments of larger dimension, through which numerous calculi will be discharged. This may be varied as circumstances require: at times used in form of a *cæcum*, or closed at the inner extremity, so as to be filled with water, to facilitate the entrance of instruments, especially in cases of malformation or distortion of the part.

This instrument is considered the best form of a catheter for general purposes.

Part i., p. 106.

Calculi may form in the kidneys in great numbers and of considerable size, without furnishing any signal except that of *hematuria*.

Part vi., p. 49.

Decomposition of Calculi by Galvanism.—Mr. Donovan observes that Orioli, an Italian of great eminence, and Dr. Harle, of Norwich, first conceived the idea of resolving a calculus in the bladder, by means of a current of galvanism transmitted down a metallic sound, vanished except at the point. He says:

M. Bouryes des Mortière dissolved a calculus out of the body, weighing one grain, perfectly, in twenty-four hours, by galvanism. But MM. Prevost and J. Dumas have gone far toward proving the possibility of successfully employing galvanism as a means of destroying a calculus in the bladder. A fusible human calculus, placed in water, was submitted to the action of 120 pairs of plates during twelve hours. The bases and the phosphoric acid were liberated at their respective poles, but, owing to the nature of the arrangement, they reunited in a fine powder. The weight in this period was reduced by twelve grains. Other trials were made during sixteen hours, and at the end of this time the calculus was reduced to a mass of

friable that the slightest pressure reduced it to little crystalline grains, which could easily pass through the urethra. MM. Prévost and Dumas conceive that it is almost always possible to introduce into the bladder two conductors which shall be spread out at the extremity by means of a slight spring, so that they may touch the calculus by their internal surface, which, in this part, is deprived of its insulating envelope. The calculus would be thus decomposed without injury to the bladder, since the current takes the shortest distance between the two poles. *Part xv., p. 227.*

Effects of Reagents upon Urinary Deposits—Griffith's Table.—The characters in the first column, combined with the microscopic appearances, will serve to distinguish one from the other, and being readily applied, will be sufficient for the use of those who have not opportunities for their minute investigation:

Name of Deposit.	Ordinary Color.	HOW AFFECTED BY				Blowpipe upon Platinum foil.	Characteristics.
		Boiling Water.	Sol. of Ammon.	Sol. of Potassa.	Acetic Acid.		
Lithic acid	Yellowish brown.	0	0	Dissolved.	0	Dissipates it entirely.	When evaporated to dryness with dilute nitric acid and an mor in subsequently added, a pink color is developed.
Lithate of ammonia	Whitish, pink, brown and red brown.	Dissolved.	Instantly dissolved.	Idem.	0	Idem. 5.	Idem.
Phosp. of lime.	White, amorphous	0	0	0	Is dissolved without effervescence.	Unaltered.	Nitrate of silver causes a yellow precipitate in the acetic solution, which is also precipitated by oxalate of ammonia.
Ammonio-magnesian phosphate.	White, generally crystalline.	0	0	0 The odor of ammonia is evolved by heat.	Is dissolved without effervescence	Ammonia is evolved, otherwise unaltered	Nitrate of silver precipitates the acetic solution yellow, this, however, is not precipitated by oxalate of ammonia.
Oxalite of lime.	White, generally crystalline.	0	0	0	0	Leaves an alkaline ash which effervesces with, and dissolves in dilute muriatic acid.	The solution is precipitated by oxalate of ammonia.
Cystic oxide.	White, bluish, or greenish.	0	Is dissolved.	Is dissolved.	1	Entirely dissipated.	Crystallizes from the ammoniacal solution on evaporation. When boiled with hydrated oxide of lead, the black sulphuret is formed.
Carbon of lime.	White.	0	0	0	Is dissolved with effervescence.	Leaves an alkaline ash	This ash is soluble in acetic acid, and the solution, precipitated by oxalate of ammonia.

1 0 signifies no effect.

2 Those effects which take place at once or within a few minutes only are noticed.

3 When lithate of soda is present, the reagents mentioned act much more slowly and imperfectly.

4 Acetic acid decomposes lithate of ammonia, and throws down the lithic acid, so that one deposit occupies the place of the other, and no apparent change occurs.

5 If lithates of soda or lime are present an alkaline ash is left.

The lithic gravel is greyish, reddish, or brownish, insoluble in diluted

muriatic acid, and easily soluble in aqua potasse, commonly with evolution of ammonia. It consists of variable proportions of lithic acid and lith of ammonia, the former of which generally abounds most in the crystalline, and the latter in amorphous forms of it. The corresponding urine is scanty, usually high in density and color, always at first acid to litmus paper, prone to deposit an adherent sand on standing, and often yielding with a few drops of nitric acid a cloud or flaky precipitate, which disappears under a boiling heat, accompanied commonly with a reddish or purplish change of color. Phosphatic gravel is usually white or pale grey, and amorphous or crystalline; and it is insoluble in aqua potasse, but easily soluble in diluted muriatic or acetic acid. It consists very rarely of phosphate of lime alone, sometimes of the phosphate of magnesia and ammonia, and often of both compounds. If ammonia be evolved under the action of potash, it contains the ammoniaco-magnesian phosphate; if not, it contains only phosphate of lime. The corresponding urine is copious, pale, low in density, ammoniacal from the first or very soon afterwards, prone to decay, and often rendered turbid by boiling, a white flaky precipitate being separated, which is easily soluble on the addition of nitric acid. Oxalic gravel is commonly brown, ash-grey, or bluish, compact, occasionally crystalline, sometimes smooth, sometimes tuberculated; and it is soluble in diluted nitric acid, scarcely soluble in diluted muriatic, insoluble in acetic acid, insoluble in aqua potasse. The corresponding urine has been little studied. It is clear, probably pale and low in density, and if it contains, as seems not unlikely, a little oxalic acid, it will give with solution of muriate of lime a white precipitate not soluble on the addition of a few drops of muriatic acid. Cystic gravel has a crystalline, somewhat waxy appearance, and it is soluble in diluted muriatic acid, insoluble in acetic acid, soluble in solution of carbonate of potash, from which it is precipitated by carbonate of ammonia. The corresponding urine is greenish-yellow, of a peculiar odor, like that of the brier mingled with that of decayed urine, and it remains turbid after some hours' rest.

Part ix., p. 12.

Calculus of the Urethra and Prostate Gland, with Obstinate Stricture of the Urethra.—[This was the case of a joiner, aged 57, of intemperate habits, and in his youth having had gonorrhoea frequently. Has suffered from difficulty of making water for thirty years, but eighteen months ago was seized with retention of urine, followed by extravasation into the scrotum and perineum. Free incisions were made, and the urine passed by the openings. The sloughing of the scrotum was extensive, almost exposing the left testicle. No instrument could be passed into the bladder.]

On March 2nd, whilst endeavoring to pass a small-sized catheter, it came in contact with a calculus anterior to the bulb. An incision was made down upon it, at the junction of the scrotum and perineum, which latter was densely hard, and almost cartilaginous in its whole length. A calculus, of the size of a filbert nut, was extracted, giving considerable relief. From this time the man's general health improved, yet it was found impossible to pass a catheter beyond the bulb, where the instrument seemed to be resisted by a dense, unyielding contraction; in fact, the urethra appeared to be obliterated. It was now resolved to make a passage to the bladder, of sufficient size to admit a full sized catheter, if possible.

Dr. Barkus performed the operation on the 13th of March, eleven days

after the first operation. He was placed in the position for lithotomy, and, after having been rendered insensible by chloroform, a catheter was introduced as far as the bulb of the urethra, and an incision made down to the point of the instrument; with the aid of a director and the catheter, gradually advanced, the incision was carried to the prostate gland, where the instrument came in contact with another calculus, which occupied almost the whole of the prostate. An incision was then carried through the lower part of the prostate, and a stone about the size of a large filbert nut extracted, and the catheter now glided into the bladder. From this time the man has gone on well; the catheter was at first allowed to remain in about a week, but it is now only introduced occasionally for a few hours in the day.

Part xxiv., p. 238.

Decomposition of Phosphatic Calculi by Solutions of Lead.—[From cases which have occurred under his notice, Dr. Hoskins says, that not only does the bladder, under irritation, tolerate the presence of solutions of lead, but also that they act as sedatives, and exert a favorable influence, directly and indirectly, on the morbid secretion of mucus which generally, in such cases, exists. Dr. Hoskins proceeds:]

After having made trial of most of the vegetable supersalts of lead, all of which act, more or less, as unirritating decomponents, I have returned to the use of that originally proposed, the nitro-saccharate, as by far the most effective.

One grain of the salt, superacidulated with five drops of strong acetic acid, is the proper proportion for admixture with each fluid ounce of water. It is essential that the salt and the acid should be incorporated before the addition of the water, and that the whole should be brought to the boiling point. Superacidulation is necessary on many accounts; it secures perfect solution, increases the decomposing activity of the liquid, and prevents the formation of any carbonate of lead.

As the salts contained in the urine tend to decompose the solution, and lessen its effects on the concretion, the bladder should be evacuated, and washed out with tepid water before the lead fluid is introduced. A double-current caoutchouc catheter is the best for this purpose, as it enables a continuous stream to be employed; and as, on account of its flexibility, it is less liable to irritate the urethra, which should be sedulously avoided. From four to eight fluid ounces of the solution may be thrown into the bladder at a time, and renewed every ten or fifteen minutes, as often as may be deemed proper. By renewing the liquid at short intervals, much greater effect on the calculus is insured, than when it is allowed to remain longer; for the precipitate formed by decomposition soon envelops the stone, and puts a stop to further action, until a fresh surface is exposed. Exercise during the retention of the injection increases its effect. Some slight revulsion may be effected by the first introduction of this, or any other fluid, into the bladder; when such is the case, the operation should be remitted for a day or two, and cautiously renewed. The injection may be either warm or cold, as may be most agreeable to the sensations of the patient. Warmth favors the decomposition of the calculus. The lead solutions act upon the mucus, which is so abundantly formed in cases of this nature, coagulating it into short curdy flakes, which are easily passed through the urethra.

When the urethra itself is inflamed, or abraded, the injection will be

injurious; for the lining membrane of the canal is, I believe, more sensitive than that of the bladder. The introduction therefore of decomponents should be had recourse to, either before lithotomy, or after the urethra has recovered from the effects of the instruments employed, but can never be used, with any prospect of success, where organic disease of the bladder or prostate exists. The injection should not be employed during the internal exhibition of hydrochloric acid, although it may be freely used when nitric acid is administered. When the bladder is not very irritable, a dilute nitric acid injection, alternating with the lead solution, will hasten decomposition.

The two facts established with respect to the lead salts, viz., first their toleration by the bladder; and, secondly, their chemical action on calcareous concretions, induce me to hope that they may become useful agents in the treatment of various other affections of the urinary organs. I have never presumed to imagine they would prove specific solvents for the stone; but, I trust that, where surgical operation is inadmissible, they will be of some avail for relief, if not for cure, by smoothing asperities, and removing the outward phosphatic coating of calculi, so as to bring them within the verge of the crushing forceps; in short, that they may avail for partial, if not for entire disintegration. The latter is more likely to happen where layers, composed of the urates or oxalates, are bound together by phosphatic cement. On this species of calculus, they are calculated to act as highly carbonated waters do on those of another description.

Besides the kind of cases already adduced, there is one variety for which decomponents seem to be peculiarly adapted: viz., concretions in the prostate gland.

Part xxiv., p. 240.

Corpus Spongiosum, Inflammation of.—The following symptoms were produced by the frequent passage of too large sounds along the urethra, in a case of calculus in the bladder; excessive hardness of the corpus spongiosum, tenderness on pressure, pretty constant discharge of mucus from the urethra, frequent desire to pass urine, great expulsive efforts being required to insure even its slowly draining from the penis, an apparently almost obliteration of the canal, notwithstanding the size of the instruments forced along its passage. Mercurial and iodine ointment were prescribed, to be rubbed along the perineum and whole course of the urethra, and the patient put under mercury constitutionally. The dilatation of the urethra was recommenced gradually, always keeping within No. 8.

Part xxvi., p. 241.

Calculus—Uric Acid.—In a case of stone in the bladder, in which the patient occasionally passed a gritty sediment, considered to be lithic acid, Mr. Bailey ordered the following: R. Potassæ bicarb. gr. x.; sodæ carb. gr. xij.; potassæ nit. gr. viij.; ft. pulv. To be dissolved in a tumbler of tepid water, and taken twice a day. In six months all attempts to discover the stone proved vain, and the gritty deposit had entirely disappeared. The greatest advantage may also be derived in these cases from taking two to four drachms of bicarbonate of potass, dissolved in thirty or forty ounces of water in twenty-four hours.

Part xxviii., p. 243.

Sounding for Stone.—If it be a noisy struggling child, always give chloroform and inject the bladder; you will thus, by a little extra trouble, be saved the annoyance of pronouncing that no stone is present (and in

these circumstances a small and light stone might be easily overlooked), when subsequently, perhaps, by another person, one is discovered and removed.

Part xxxvii., p. 287.

Calculus—Medical Treatment of.—The use of alkaline remedies as solvents is of great importance; these should be given in much larger doses than are ordinarily exhibited, as, for instance, three drachms of carbonate of potash daily. Strong alkaline injections should also be frequently and perseveringly used. This medical treatment may be successfully combined with surgical—the stone having been reduced to fragments by the lithorite, the solution of the fragments should be attempted. The stones most readily acted on are those composed of earthy phosphates or cystine.

Part xxxviii., p. 152.

Renal Calculus, Passage along the Ureter.—What is the cause of the agonizing symptoms accompanying the passage of a renal calculus? Professor Simpson says that the great distention of the tube by urine above the impacted calculus is the cause, and he has succeeded in relieving several cases by inverting the body and manipulating the affected side, on the same principle as you would invert a person with a shilling in his trachea.

Part xxxviii., p. 154.

To Remove a Calculus from the Urethra.—Get the scoop of a small silver director passed into the urethra; and, when you once feel the stone, manœuvre to get the scoop beyond it; you then have it safe; alter the angle of the instrument, and it readily comes forward. It is a far superior plan to the use of forceps of any kind. It is like what is seen in removing a pea from the ear of a child; if you attempt to do it with forceps, you will do what was done with the bougie; instead of poking it out, you will poke it in. But if you get a little scoop beyond it, you will soon have it out.

Part xxxix., p. 209.

CAMPBOR.

Concentrated Camphor Mixture.—The principal points to be attained in preparing a "mistura camphoræ concentrata" are three: 1st. It must be perfectly colorless. 2d. It must contain as little spirit as possible. 3d. When mixed with the due quantity of water, it must approximate as closely as possible to the camphor mixture of the London Pharmacopœia. After repeated trials of various formulæ, to all of which there appears some objection, Mr. Fordred found the following to be the best adapted for practical purposes:

MISTURA CAMPHORÆ CONCENTRATA.

R. Tincturæ camphoræ, P.L., fʒj. ʒv.; *tincturæ myrrhæ pallidæ, m. xxx.; †spiritûs vini rectificati ad fʒiv. M. fʒiv. ad fʒxvj. aquæ puræ—mist. camph.

TINCTURA MYRRHÆ PALLIDÆ. — R. Tincturæ myrrhæ P.L. ʒij.; P. Carbonis animalis, ʒj.

† If absolute alcohol is employed, a less quantity will be required.

Digest for fourteen days, frequently shaking; then filter.

The best method of mixing this, is to measure the requisite quantity of water *first*, and then add the solution of camphor to it. Those who object to the addition of the myrrh, though in so small a quantity, may omit it; though a solution so prepared does not mix so readily with water—it is some time before the whole of the camphor is taken up. Undoubtedly there is something mysterious in the action of myrrh on camphor, which has not yet been satisfactorily explained. We know for a certainty that the large quantity of spirit present in all concentrated camphor mixtures is the immediate cause of the ready solution of the camphor in the water, but still the myrrh, in some way or other, materially assists the *rapidity* of the action. A camphor mixture, made with the foregoing essence, contains 76 of a grain of camphor in the fluid ounce, equivalent to rather more than $\frac{1}{2}$ of a grain.

Part vii., p. 45.

Effects of Camphor.—M. Raspail, in his lectures on the physiology of health and disease, says on this subject: During the last five years, I have been in the habit of smoking and inhaling camphor, under the form of a cigar, both day and night; I have also placed every night, under my bolster, a certain quantity of purified camphor. My nights, instead of being agitated, have been passed in a calm and uninterrupted sleep. Indifferent dreams, recalling but the ordinary scenes of life, have succeeded to terrible nightmares, which used to torment me, almost every night, for at least a quarter of an hour. Whenever I awake, I chew from fifteen to twenty *centigrammes* (3 to 4 grains) at least of camphor, which I afterward swallow along with a small quantity of water; this sometimes amounts, in the course of the night, to as much as 60 *centigrammes* (12 grains) of camphor, which I have accustomed myself to swallowing; in the day time, I often take a dose of similar strength; as a hygienic precaution, I also use frictions of camphorated spirits, when rising or going to bed, and whenever I perceive the least lassitude of spirit or the slightest exhaustion of body. And with this inflammatory treatment, according to the Brownian, the Rasinian, and physiological doctrines, I never was better in my life, nor, in fact, so well for a long time together. I am more disposed to labor, and am less inconvenienced than ever by it. I therefore consider myself justified in recommending others to partake of the benefits derived from this long and conclusive trial. I should add that constipation is, generally speaking, produced by medicines of this class.

Part ix., p. 70.

Essence of Camphor.—R. Tr. myrrhæ ʒss.; sp. vini camph. ʒiiss.; sp. vini rect. ʒiv. M. The myrrh renders the spirit of camphor miscible with water, without which it would be decomposed. To deprive the myrrh of its color, add to it some animal charcoal. About fifty drops will make a pint of ordinary camphor julep.

The mode of administering camphor in suspension of mucilage, is entirely obviated, by the myrrh suspending the camphor in the minutest state of division, and in a perfectly miscible state.

Part xii., p. 255.

Uses of Camphor.—At a meeting of the Medical Society of London, Sir James Murray, after alluding to the disadvantages attending the exhibition of camphor in the usual form, exhibited to the Society a solution of camphor in his fluid magnesia. In this preparation it is administered more easily; it is almost tasteless, the flavor of the magnesia being also masked

by it. One ounce contains three grains of camphor; an ounce of it forms a very convenient and efficacious dose as a stimulant; if frequently repeated, and in larger doses, it acts as a sedative. Sir James mentioned that the solution could easily be increased in strength. He found this proportion of soluble camphor of great use in the fever then generally prevailing, which was characterized by great prostration, mental confusion, oppression and despondency, owing to previous debility from bad food, impure air and privations, the blood being thin and dark-colored from imperfect arterialization. Diarrhœa was a general symptom, attended with severe pain over the stomach and colon on the slightest pressure; even when subacute inflammation existed in the alimentary cavities, and where wine and ordinary stimulants would be hurtful, Sir James found this fluid camphor admirably adapted to support the general strength. He had found it very useful in some cases, where, on account of delirium and cerebral excitement, leeches and local depletion were at the same time necessary. Under its use the tongue became moist, the skin softened, the pulse was reduced in frequency, and it seldom failed to relieve that oppressed breathing which is so often the result of debility. This preparation also enables us to distinguish between delirium from exhaustion, and delirium from an inflammatory state of the brain. In the former it continues to exhibit an improvement which cannot be mistaken, and in the latter, it sustains the vital powers, until suitable depleting means can be carried out. Again, where weakness is caused by diarrhœa, the moderate proportion of fluid magnesia, which forms part of this liquid camphor, prevents acids and crudities in the alimentary passages, and forms a very valuable vehicle in which to administer opiates and other remedies. The low degree of vitality prevalent in these fevers greatly augmented the disposition to gangrenous sores and sloughing ulcers—in these cases the aqueous solution of camphor presents many advantages over its spirituous applications; the watery solution, not being volatile, remains fixed and durable where applied in poultices, lotions or embrocations; it also forms an excellent collyrium in scrofulous affections of the eyelids, and a soothing application to painful swellings, sprains or bruises; for removing the factor of bed sores and ulcerated surfaces, it is particularly well adapted.

Prof. Hart, of Dublin, assured Sir James that it was one of the most effectual medicines for the prevention of cramps and collapse, and that camphor was always a most useful stimulus in the extensive cholera hospital under his charge. It does not, like other stimulants, augment the danger of congestion. Fluid camphor is a very valuable agent in abating nervous or spasmodic constriction during fits of asthma, where there is not any organic alteration. The liquid magnesia combined with this fluid, tends to preserve a more healthy condition of the alimentary organs, a precaution always to be observed in the treatment of asthmatic ailments. From the known properties of camphor in destroying white-blooded animals, Sir James Murray was induced to administer the fluid camphor both by the stomach and by enema, for the destruction of intestinal worms, with considerable success, the worms being expelled dead.

Dr. Copland said he had given camphor in every dose. When he was in Germany, soon after the peace, low fever was very prevalent, and camphor was the remedy usually adopted, three grains being administered every four or five hours. One ounce of this solution, containing three grains, would generally prove a sufficient dose, frequently repeated;

but in low fever it is sometimes necessary to give fifteen-grain doses three or four times a day, combining it with calomel and opium. This preparation seems an excellent one; for, when given in a solid form, it irritates the stomach, and, in the ordinary solutions the camphor soon separates, and spirituous tinctures cause unpleasant eructations. There is nothing empirical about it, as the mode of preparation is known by the profession. In asthma he had found camphor a most effective remedy dissolved in spirit of aniseed. In these cases the fluid camphor will most likely prove very useful.

Dr. Copland had given camphor in fifteen-grain doses, and up to forty grains in twenty-four hours. In small doses it is a cooling, refrigerant medicine; in three-grain doses it is restorative and soothing, and slightly soporific; above five grains are a stimulant; in large doses it produces delirium and cerebral excitement—hence its benefit in coma and the last stage of fever. Crude camphor will produce ulceration when in contact with a mucous surface. When mixed with mucilage, etc., it is quickly absorbed, and passes off by the lungs and skin; very little by the kidneys. When injected into the bowels, it produces its effect very rapidly. When the puerperal fever was so fatal twenty years ago in the lying-in hospital, camphor was tried in large doses, from ten to fifteen grains, repeated every five or six hours, and only three deaths afterward took place. Opium was combined with it, and turpentine injections occasionally administered. Camphor is a capital remedy in worms, particularly when they are thread-worms. He has often been in the habit of giving camphor with carbonate of magnesia, rubbed up with or without mucilage. But in this state of permanent solution, the remedy can display its efficacy at once; it is, therefore, an important improvement. *Part xvii., p. 18.*

New Preparation of Camphor with Chloroform. The formula is as follows: Three drachms of solid camphor are dissolved in one fluid drachm of chloroform. This is, perhaps, one of the most remarkable cases of solution the whole range of chemistry presents to us. The solution is most *rapid and complete*, and the bulk of the liquid is now increased from one to fully four fluid drachms. The solution, rubbed up with the *yolk* of one fresh egg, may be formed into an extremely elegant emulsion by the addition of water, without the separation of the camphor or chloroform; in fact, no separation of any kind takes place. If to the proportions given above as much water be added as to make a four-ounce mixture, each teaspoonful of the mixture when formed will contain about five and a half grains of camphor, and about two minims of chloroform. The capability of the formula being varied so that either the camphor or chloroform may constitute the predominating ingredient, must be obvious.

We have tried the effect of several medicinal substances on the mixture. With none of them has any separation been caused.

A weak saline solution, composed of common salt, phosphate of soda, and an alkaline carbonate, mixed readily, as well as a solution of murate of morphia and sulphate of zinc. With the volatile alkali, and acid liquids—such as a weak solution of acetic and muriatic acids—the mixture seems to become more intimate and stable. The mixture with ammonia has stood since its preparation—now fully a week—without any separation. With water alone, however, the chloroform solution of camphor separates in a few days, but they readily unite again when slightly agitated. The solu-

tion of camphor in chloroform, although insoluble in water alone, appears in this mixture to be in as complete a state of mixture as the butter in milk when newly drawn from the cow. *Part xviii., p. 344.*

CANCEROUS AFFECTIONS.

Lupus—Use of Precipitated Carbonate of Iron.—Mr. Carmichael makes the following observations: The precipitated carbonate of iron is, perhaps, as good a preparation for internal use as any other, and the best mode of exhibiting it is, in my opinion, at the moment of precipitation, for a knowledge of which I feel indebted to my friend, Sir James Marryat. The formula is to add to one drachm of the bi-carbonate of soda, dissolved in four ounces of spring water, a drachm of muriated tincture of iron. The draught to be taken during effervescence, and repeated thrice a day. Although the quantity of carbonate of iron thus formed is not considerable, yet it is in such a state of minute subdivision, and combined with a solution of muriate of soda equally minute (the saline most congenial to the system of red-blooded animals, as it renders the hematosine active and vivifying), that I always found it to answer the object of a chalybeate thus given much better than the large doses of from one to two drachms of the carbonate of iron, that have of late been recommended, and which I found few stomachs could bear. If there is ulceration, it is very generally improved by the same medicine; and I have seen many instances of that form of malignant disease termed lupus, which attacks the face, perfectly cured by the conjoined use of the internal and external exhibition of this preparation of iron. *Part i., p. 33.*

Cancerous Affections of the Uterus.—Dr. Osbourne recommends conium. Even the extract, imperfect as it is, has an effect in appeasing the pain in cancerous affections of the uterus, and that without exerting sensible narcotic powers, which almost excuses Stoerk for the error into which he fell, in proclaiming it as a cure for cancer. I have applied it externally, and given it in such cases, sometimes without effect, but sometimes with remarkable alleviation of pain, after opium had failed; and never observed any ill effects, except in one case of a woman laboring under scirrhous uteri, who obtained great relief from pain by it, but when the dose was increased to four grains three times daily, had headache, black motes in vision on sitting up, and saw two persons instead of one: all which disappeared when the remedy was discontinued. *Part i., p. 35.*

Treatment of Cancerous or Malignant Diseases—Lupus.—Mr. Carmichael cured a case of lupus, of many years standing, and which had destroyed the greater part of the nose, in four weeks after commencing the administration of Donovan's solution.

"Of this *liquor hydrargyris arsenici et hydrargyri*, each drachm measure consists of: water, one drachm; protoxide of arsenic, one-eighth of a grain; protoxide of mercury, one-fourth of a grain; iodine (converted into hydriodic acid), four-fifths of a grain.

"The color of the solution is yellow, with a pale tinge of green: its taste is slightly styptic. It cannot be properly conjoined with tincture of

opium, or with sulphate, muriate, or acetate of morphia; for all these produce immediate and copious precipitates in it. Hence, if opiates are to be used during the exhibition of this arsenico-mercurial liquor, they must be taken at different periods of the day. Tincture of ginger produces no bad effect. The following formula is proper:

"R. Liquoris hydriodatis arsenici et hydrargyri, drachmas duas; aqua destillata, uncias tres cum semisse; syrupi zingiberis, semunciam. Misce. Divide in haustus quatuor. Sematur unus mane nocteque.

"Thus one-sixteenth of a grain of protoxide of arsenic, and one-fourth of a grain of protoxide of mercury, would be taken in each dose, along with two-fifths of a grain of iodine, which being in the state of combined hydriodic acid, will be much diminished in energy of medical effect. This, no doubt, is the proper dose to begin the exhibition of arsenic with; but it will be very soon necessary to increase it.

"The division into draughts is here necessary; first, to insure accuracy of the dose, so essential in the case of this active medicine; and next, to prevent injury to the ingredients by the use of a metallic spoon as a measure—the general way in which, unfortunately, the dose of a medicine is determined."

Part i., p. 107.

Incipient Cancer of the Womb.—Dr. Montgomery is of opinion that there is a stage of cancer of the womb which is remediable, and the germs of which may be destroyed, a stage which precedes the two which are usually described by authors; "and the reason why this stage is not more generally recognized, is that the accompanying symptoms are frequently so light as to attract very little the attention of the patient, and thus are suffered to remain without treatment, until a profuse hemorrhage or some violent fit of pain sounds the alarm, and then, on examination, the disease is found to have passed into its second stage; the surrounding tissues are indurated and consolidated with the organ concerned." There is no doubt that many of these cases are entirely overlooked by practitioners, simply from not properly examining the organ.

The margin of the os uteri is found hard, and often slightly fissured, and projects more than is natural into the vagina, and is irregular in its form.

In the situation of the muciparous glands, there are felt several small, hard, and distinctly defined projections, almost like grains of shot, or gravel, under the mucous membrane. Pressure on these, with the point of the finger, gives pain, and the patient often complains that it makes her stomach feel sick.

The cervix is, in most instances, slightly enlarged and harder than it ought to be. The circumference of the os uteri, especially between the projecting granule, feels turgid, and to the eye presents a deep crimson color, while the projecting points have sometimes a blueish hue. The only affection of the uterus for which this disease could be mistaken is the irritable uterus, from which however, it is essentially different.

Treatment should be begun by the local abstraction of blood, either by cupping, or by leeches applied directly to the os uteri, or as near as possible to the organ, accompanied by the free use of anodyne fomentations.

Except there be something especially to forbid its use, mercury should be given in some form, so as to bring the system very gently, but do

cidedly, under its influence; for which purpose it may be combined with iodine in very minute proportions, with camphor, opium, hyoscyamus, or hemlock.

Afterward, *iodine* or *hydiiodate of potash* may be used both internally and externally; and *iron* will be found a most beneficial and powerful agent.

The *iodide of iron*, which combines to a certain degree, the powers of both remedies, may also be used with advantage in most cases, and will be best administered in the form of *Dupasquier's syrup*.

Arsenic has received the testimony of many able practitioners in its favor, as an agent capable of giving great relief in these affections.

Counter-irritation is an agent of great influence in this complaint, and may be established in a variety of ways.

The *tearm bath* and the warm *hip bath* are means of great value throughout the treatment of this affection.

After the removal of the congestion and organic changes from the os uteri, there remains, occasionally, a sensitiveness of the part, which causes the patient much discomfort, and which will be best relieved by the use of the bath, as above directed: conjoined with anodyne applications to the part, or the nitrate of silver in solution; the best mode of applying which, is by means of a bent glass tube, of about an inch in diameter, which the patient can introduce and manage for herself; all that is necessary is that she should lie on her back, and introduce the tube as far as its curvature, and then pour into the upper end the medicated solution, which will immediately pass to the os uteri, and can be retained there as long as necessary, the tube filling the vagina sufficiently to prevent its flowing away.

Part v., p. 35.

Palliative Treatment.—In a case of cancerous ulcer which had destroyed the greater portion of the nostrils, accompanied with the most lancinating pains, over which neither local applications nor internal medicines, except for a short time, had any control, the following were ordered:

R. Inspissated ox-gall, two drachms; oil caraway, ten minims; carbonate of magnesia, sufficient to form a mass. Mix and divide into 36 pills. Dose —2, three times a day.

The effect was almost entire relief from pain, over which, however, the pills of ox-gall soon lost their palliative influence.

Part vi. p. 68.

Lupus—Iodide of Arsenic.—Dr. James I. Ross says the first time he had an opportunity of seeing this substance used as a local application, was in a case of lupus, extensively affecting the nose and upper lip. It was ordered by Dr. J. J. Nicol, of Inverness, and with excellent effect. Three grains were made into an ointment with ℥j. of lard, and a portion applied daily to the sore, spread on lint. The surface soon became of a dark iron-grey color; in fact, sloughed and formed an eschar. When this slough came away, it left below a healthy sore, which soon healed under the black wash. During the progress of the case, one or two spots showed signs of progressive ulceration, but by a timely application of the same ointment, their action was changed in the same way, and at last the whole affected surface cicatrized.

Part vi., p. 124.

Cancer—M. Lisfranc on.—That cancer is not contagious, M. Lisfranc

is entirely convinced. He also denies that there is any *general infection of the system* in this disease. He supposes the disease arises from the development of a greater or less number of tubercles of a malignant nature, which, like ordinary tubercles, may be more especially confined to certain organs. As suppuration attacks and removes tubercles, not simultaneously, but in successive attacks, so cancer might be removed by several successive operations.

From observation upon man and experiment upon animals, M. Lisfranc believes that cancer may be produced solely by common irritating agents. Thus, ulcers, cicatrices, accidental tissues, frequently become cancerous when irritated, while instances of relapse, after the removal of such, are very rare. Many persons are very liable to the formation of pimples upon the face, consisting of accidental tissue. No change usually occurs in these until old age approaches, when they either spontaneously ulcerate, or do so in consequence of the irritation of external causes. The pus is scanty in quantity, and, concreting into a thin crust, the patient takes no notice of it. But sooner or later the cancerous condition supervenes, and has not already commenced with the first ulceration. Persons who are liable to the production of permanent pimples upon the nose, should be careful in not exciting their cancerous degeneration by a too rough use of the pocket-handkerchief. Razor wounds, in such subjects, often produce dangerous ulcerations. As soon as ulceration occurs, if it be not yet cancerous, apply the nitrate of silver, following its use up by mildly stimulating dressings. Even when the ulcer is cancerous, caustic is sometimes used with good effect; but the author has seen such frightful aggravation result from its employment, that he prefers at once removing the part with the bistoury. If a superficial ulceration of a cancerous aspect be seated, not on accidental tissue, but upon a normal texture, somewhat indurated, it may be touched lightly with a liquid proto-nitrate of mercury, with the intention, however, rather of changing its mode of action, than of effecting the destruction of the tissues upon which it is seated. In this way you will usually effect a cure, especially if you have premised depletion, or afterward employ it, if any inflammatory action seem to demand it. The corners of the lips, which, when neglected, so frequently degenerate, rarely do so if they are touched with the nitrate of silver. The same substance is also very useful in the case of a slight erosion of the cheek, covered by a thin, greyish crust. The irritation produced in the faces of old persons, by the accumulation of the matter of the sebaceous follicles, may eventually terminate in cancer.

M. Lisfranc maintains that all experienced surgeons must deny that cancer is always well characterized. In this way he explains Desault's supposed cures of cancer of the rectum, and cites cases of apparently incurable cancer yielding to means seemingly inefficient. He observes, also, that we pronounce many ill-looking sores to be cancerous, merely from the localities whereon we find them, and that we should never so consider them if seen on other parts, *e. g.*, the leg. It is well known, also, that syphilis frequently simulates cancer, and the author has often, in doubtful cases, employed anti-syphilitic remedies with the best effect.

Lisfranc places more reliance on an operation for the removal of the diseased portions than most surgeons. He operates occasionally in the *advanced stage*; and even when the neighboring lymphatic glands are enlarged, he will not always allow them to be an impediment to the

operation, trusting to their dispersion by antiphlogistic treatment : as all enlarged glands are not cancerous, or even scirrhus.

After the operation for cancer, the fingers must be carefully passed over the whole surface of the wound, by which means small tubercles, easy of removal, may be often felt—they sometimes being completely imbedded in the pectoral muscles. When very numerous, they can rarely be completely extirpated, and when left they frequently give rise to the reproduction of the disease.

Observation proves that cancer is liable to relapse, in proportion as its progress has been active, or it has been complicated with acute inflammation. This last is to be met by local depletion, continued for some days prior to the operation. Relapses will be less likely to occur, also, if half an inch of sound skin be included in the incision—leaving, however, enough integument, when it is sound, to procure union by the first intention, thereby diminishing the extent of irritation of the wound and subsequent cicatrix.

In persons of a sanguine temperament, or when suffering from the obstruction of some flux, let bleeding be practised ; and, if the parts in the vicinity of the cicatrix become congested, a revulsive bleeding of three or four ounces must be employed. The vitality of the susceptible organs must be modified by the use of powdered hemlock (the extract usually being very bad), for many months. Beginning with a grain every morning, the dose may be gradually augmented to four. Lisfranc has a very high opinion of this remedy, as a solvent and anti-nervine—and its utility is also well seen as the latter, in the gastralgia of women suffering from uterine affections. Occasional mild aperients, exutories, in case of retrocession, and, after omitting the hemlock, the external or internal use of iodine, are other useful means. Much good also results from compression, employed by means of agaric and a bandage, and extending beyond the cicatrix. The cicatrix must not be irritated, especially by too early a movement of the parts. The mildest diet, and, if debility be not present, even abstemiousness should be enjoined.

Part vii., p. 161.

Lupus affecting the Eyelids, Nose, and Cheek—Chlorate of Zinc.—The chlorate of zinc, as an escharotic, is, perhaps, not so generally used as its merits would warrant.

This substance, however, would often be more useful than potassa fusa or nitrate of silver ; according to Vogt and Cauquoin, it exercises an influence over the vital actions of neighboring parts, and to this circumstance is probably owing its efficacy and the healthy appearance of the sore when the eschar has separated. When used for this purpose, a paste is readily made, on account of its deliquescence, by mixing one part of the chloride, and from one to four of wheaten flour ; or it may be used externally as a lotion, in the strength of two grains to the ounce of distilled water. Dr. Byron, of Meath Infirmary, has used it with success in some obstinate cases of lupus affecting the eyelids, nose and cheek. He applied it in the solid form to the whole surface of the sore. The pain was excessive, and the heat and redness continued two days. The sore assumed a much healthier appearance after the separation of the eschar. It was applied every three or four days to those parts which again assumed an unhealthy appearance, and

in one case it was repeated ten times before cicatrization was completed. The same treatment was adopted in eight cases with great benefit, and is thought worthy of more extensive trial in these obstinate cases.

Part vii., p. 237.

Liquor.—A pill containing one-twelfth of a grain of *iodide of zinc*, gradually increased to one-sixth of a grain, one-sixth of a grain of the *iodide of mercury*, and two grains of *extract of cinchona*, given twice a day in *lupus* and *syphilis*. Spurious eruptions. The benefit of mercury may be omitted when it has affected the gums.

Part viii., p. 11.

Cancerum Oris and Ulceration of the Cheek.—Considered identical when the former has been neglected.

To prevent being misapprehended as to the particular disease in which the *chlorate of potash* has been successfully used by Dr. Hunt, he gives the following description:

It commences by small ulcers, either on the inside of the cheek, or at the point of conjunction of the mucous membrane of the cheek and gums, or on the gums themselves, separating them from the teeth; they are very tender and painful, and attended with profuse salivation; the breath soon becomes tainted with an offensive smell, not unlike the mercurial fætor; if the disease is neglected, the ulceration goes on to destroy the gums, the teeth loosen and fall out, the alveoli are laid bare; at the same time the brown ragged ulcer spreads rapidly on the inside of the cheek, the integuments over the spot corresponding to the ulcer become hard, swollen, at first white, and afterward of a dull red color, and shortly a black spot appears in the centre, which quickly spreads and destroys more or less of the cheek; and if the child survive, it is sadly disfigured, and not uncommonly loses the power of opening its mouth, from the unyielding nature of the cicatrix; but more commonly, if the disease has extended its ravages to this extent, it sinks and dies.

In reference to the treatment, Dr. Hunt remarks:

Before giving the chlorate of potash, when it has been possible to induce the child to swallow an aperient, I have given, in the first place, a dose of rhubarb and sulphate of potash with a grain of calomel; but generally the pain and tenderness of the mouth has been so great, that it has not been feasible. I have, therefore, given the chlorate at once, and have waited a day or two, until the mouth has become less tender, and then have ordered the aperient. The quantity of the salt that I have been in the habit of prescribing, varies from twenty to sixty grains, according to the age of the child, in divided doses in twenty-four hours, dissolved in water, the beneficial effect is often observed on the following day, almost always on the second; the disagreeable fætor soon lessens, the sores put on a healthy reparative action, the dribbling of saliva diminishes, and if there is more ulceration, it very speedily heals, if there is an eschar, it soon separates, and the sore granulates kindly. In no other disease did I ever see the beneficial effects of any medicine so manifested, as that of the chlorate of potash in these diseases. It is sometimes advisable, indeed necessary, that the aperient should be occasionally repeated.

Part viii., p. 148.

Ter-chloride of Carbon in Cancer and other Diseases.—The ter-chloride of carbon has been used for some time past with success in the Middlesex

Hospital as an internal and external remedy in cancer and some other diseases. Mr. Tuson publishes an interesting paper on this practice, which, if corroborated by further experience, will be a valuable addition to our remedies in such cases. It was first ordered as a local application in a case of cancer of the breast, one drachm being mixed with a pint of water. The pain was relieved immediately. It was then given internally, one drop increased to two or three drops in a little water three times a-day. The effect was sedative, procuring sleep for twenty-four hours. The cancer afterward sloughed, and considerable pieces came away, the surface left having a healthy granulated appearance. In another case, it was used for a cancer in the groin. The same sedative effect was produced, followed by similar sloughing. Its sedative effects were confined to patients labouring under cancer and one or two other diseases, having no such power in other cases. It is also recommended in gangrena senilis, its antiseptic property being here as remarkable as in cancer, the fœtor being completely destroyed by its use. Also in sloughing ulcers, in uterine affections, carcinoma, scirrhus, ulcerated surfaces with profuse discharge, its use as an infection has produced the greatest benefit. It may also be useful in neuralgic affections.

Part viii., p. 149.

Chloride of Zinc in Phagedenic Ulcer of the Septum Nasi.—In a case of phagedenic ulcer of the septum nasi, which threatened to destroy the whole nose, Dr. Zwerina, of Vienna, arrested the disease by the chloride of zinc. One grain and a half of the salt was dissolved in one ounce of distilled water, and the scabs being removed, the sore was pencilled over several times a-day with the solution. At the end of a fortnight, a healthy granulating surface was found underneath the thick crust which now covered the sore, and this being removed occasionally, and the solution re-applied, it cicatrized in five weeks.

Part viii., p. 155.

Scirrhus of the Female Breast.—On scirrhus of the female breast, Sir B. Brodie gives us the following:

If there be a scirrhus tumor imbedded in the gland of the breast, and you remove the tumor together with the affected part of the breast in which it is situated, leaving the remainder of the breast, according to my experience, the disease is certain to return; and this corresponds to a rule which I think applies to all cases of malignant disease—that is, that you have no security against the return of the disease unless you remove the whole of the organ in which it is seated.

For instance, if there be fungus hematodes of the bone of the leg, the patient may have some chance if you amputate the thigh above the knee, but none if you cut through the tibia below the knee. If there be malignant disease of the femur, you have very little chance at all, unless you think it expedient to take out the thigh bone at the hip joint. I say, therefore, in cases of scirrhus tumor of the breast, if you perform the operation at all where the tumor is imbedded in the breast, you must remove the whole of the organ. You may imagine that this is a thing very easy to be done, but you will not find it so in reality, for in amputating the breast in a thin person, you will be very apt, if you are not extremely careful, to leave a small slice of the gland of the breast adhering to the skin, and I have no doubt that this small portion may, in some cases, form the nidus of future disease. The color of the gland of the breast varies little from that of the surrounding adeps, the hemorrhage causes confusion, and you

must be careful in the dissection to keep the knife near the skin, not near the breast. But, in addition to this, in every case, when you have taken out the tumor, you should examine the surface, and see whether every part you have removed is covered by healthy adips. If it be not, look on the middle of the flap of the skin, and see whether any small portion of the breast has been allowed to remain there.

So far, then, the success of the operation may depend mainly on what you do. Where the skin is perfectly sound; where the nipple is not retracted; where there is no diseased gland in the axilla; where there is no sign of internal mischief; where there is no adhesion of the breast to the parts below; and where the patient is not very much advanced in life, I should say that there is a reasonable chance of an operation making a cure. I do not intend to say that in all the excepted cases there will be a permanent cure—far from it; but there will be in some instances, and the chance of it may be sufficient to warrant you in recommending the patient to submit to the operation.

Scirrhus tumors sometimes take place in the nipple, and I believe they are to be distinguished from similar tumors in the breast itself; and that there is a much greater chance of a permanent cure where they originate in the nipple than where they have their origin in the breast.

An operation is a shock to the system, making a great demand upon the vital powers, and if you withhold the sustenance and stimulus to which the patient is accustomed, the constitution probably will not be able to bear the shock.

I have thus spoken of the operation for the removal of a scirrhus tumor of the breast, but this organ is liable to other malignant diseases. The observations that I have made apply to the one case as well as the other, but I think that where malignant disease of the breast has the form of fungus hematodes, the chance of ultimate success is even less than where it has assumed the form of scirrhus. Fungus hematodes is a worse form of malignant disease than scirrhus, and in the few cases which I have seen of it in the breast, where the tumor has been removed by operation, the patient has always died within a short time afterward from some disease of the lungs and effusion into the pleuræ. But, after all, I believe that malignant disease is essentially of the same character, whether it assumes the form of scirrhus, or fungus hematodes, or pancreatic sarcoma.

Part ix., p. 113.

Effects of Chloride of Zinc, and Chloride of Lead in Cancer.—Mr. Tuson has published some new cases to show the value of certain preparations of chlorine in cancerous affections. The use of chloride of zinc externally is well known, but Mr. Tuson administers it internally; he also places confidence in the chloride of lead and other chlorides given internally. In one case which he publishes, there was an extensive cancerous disease of the right breast and neck, which was treated unsuccessfully for a long time, till a paste was applied, made of one part of chloride of zinc and three of flour; this was well mixed and moistened with water, and then applied over the whole of the ulcerated parts. The chloride of zinc was also given internally; half a grain was ordered every morning in a wineglassful of caraway water. The chloride of zinc paste was applied again, and when the slough separated, the ulcerated surface healed kindly.

The cancerous disposition continued for some time, and the dose of the metal was increased to three-quarters of a grain, and continued for two months. The improvement, although very striking, was not permanent, as the patient suffered a relapse, which ended fatally. The case, however, was sufficient to show that the treatment had made considerable impression on the disease, and especially in healing the open cancer, which Mr. Tuson has found to be the result in several other cases. A solution of one drachm of the chloride of zinc, to a pint of water, injected upon a cancerous ulcer, or applied with linen rags, will be found a very useful application. Another case is related in which the *chloride of lead* was used. The case was one of large, irregular, open cancer of the right breast, extending deeply into the axilla, so that the pulsations of the vessels could be seen, with a foul, yellow, excavated surface, copious discharge, with much fetor and severe pain. A solution of the chloride of lead (one drachm to a pint) was ordered to be applied and kept constantly wet; and ten grains of chloride of potassium were administered in earway water three times a day. Under this treatment there was considerable improvement. The solution of chloride of zinc was afterward substituted for the lead, and although, as in the other case, the result was unfavorable, the life of the patient seemed to be prolonged. The relief, also, is sometimes very great, arising, probably, from the application acting upon the nerves, and paralyzing them. The same relief may be procured from the ointment in some hysterical affections of the breast, or nervous irritability of the gland, and in some cases where a tumor may be pressing on, or involving a nervous filament. The ointment may be made with one drachm of the chloride of lead, and one ounce of common cerate.

Part ix., p. 108.

Treatment of Lupus, etc.—We have to deal with ulcers of the face, and they are of different kinds. We do not often meet with simple ulceration here except from accident. Ulcers in the upper part of the body heal very rapidly; the blood flows freely away, and this is very essential to the healing process. Wounds in the upper part of the body heal in one-fourth part of the time that they do in the lower.

Many ulcers here assume a specific character, and sometimes commence from very slight injury. A man has cut himself in shaving, and the wound has become poisoned, as the saying is, somehow. Some corrosive or irritating stuff has been applied to it by accident or design, the oxide of some metal, such a panacea as brown soap and sugar; or a small, softish wart appears, or a little eruption, and from this ulceration takes place. These ulcers arise about the ale of the nose, sometimes at the corner of the eyes, and sometimes on the cheek. Occasionally they begin as hard tubercles, and go on extending. Perhaps the sore heals at one place, and spreads at another. Although these sores are troublesome to the patient, and intractable, they can scarcely be looked upon as thoroughly malignant. They may go on and destroy all the parts with which they come in contact: skin, muscles, cartilages, and bones, all perish before them. Cases which are neglected may proceed from bad to worse for a number of years, until scarcely any vestige of the bones of the face or their coverings is left. I have over and over again, says Mr. Liston, seen patients who had lost all their features, lips, nose, and eyes; nothing remained but the brain-pan and tongue, and they required to be fed by a funnel introduced over the base of this organ and into the pharynx.

These ulcers have a sharp edge; the integument around them is sometimes slightly tuberculated, and the edges are now and then, as it were, worm-eaten, but there is no inflammation around; they are glazed on the surface, and there is no appearance of granulation in them; they may continue for a great many years, causing the destruction I have mentioned without the lymphatics being at all affected, without the constitution suffering much, and without the disease appearing in other tissues or organs of the body.

Now, this affection, which has been termed *lupus*, or *noli me tangere*, or *herpes excelsus*, etc., may be at once put a stop to by appropriate treatment. It has been supposed that internal medicines do good: arsenic is said to be efficacious, but it is by local treatment that you principally succeed. There may be some slight swelling in the part, and the parts underneath may be healed, but whenever you see the edges assume a sharp appearance they must be destroyed by an active escharotic. You may employ arsenical paste, but the constitution is apt to be dangerously affected by it. The best application is the chloride of zinc, mixed up dry with an equal quantity of flour, and then moistened by adding a little water to it. It must be mixed up to the consistence of bird-lime, and you may spread it on lint; but the better plan is to put it on a spatula, dip your finger in water, then lay it on with accuracy round the sore, and then over the whole of it. It subjects the patient to some pain, but that ceases after a time, and the paste becomes elevated at the edges. You then find that an extensive slough has formed, and immediately that separates instead of the old eating ulcer you have substituted a healthy granulating surface, the part furnishes good matter, and there is soon the commencement of cicatrization all around. The surface is then poulticed to remove the scabs; and if, subsequently, any portion should continue to present an unhealthy aspect, the cauterization ought to be repeated. This may be done in all the stages of the disease; even where the greater part of the features are destroyed, you may in this way check the disease; and when the affection is not so far advanced, you may destroy it altogether, and obtain a healthy cicatrix without much deformity.

The chloride of zinc used thus, is a most actual and effectual remedy, but it causes, as might be expected, severe pain for some hours after its application.

Part x., p. 168.

Lupus Superficialis—Use of Proto-chloride of Mercury and Quina.—Mr. Hamilton reports several cases treated by him in the Richmond Hospital, by means of this salt. We give one as an example:

The first case was that of a laborer, aged forty, who had suffered from *lupus superficialis* of the left arm for a twelvemonth: it occupied the lower half of the arm, and the upper part of the forearm, and presented the usual characteristics of that disease, a dull, red, shining surface, with many superficial ulcers having a tendency to burrow under the skin; there was also a small oblong patch of the same on the sternum. He had been treated by two medical men without any benefit. One grain of the proto-chloride of mercury and quina was given three times a day. When he had taken twenty-one grains, rather profuse salivation set in. A very marked improvement had taken place in the local disease; the redness had paled, most of the ulcers were healed, or become superficial. The medicine was omitted for a few days, and then resumed, a grain night and morning. He

was dismissed cured, having been a little more than three weeks in the hospital. Nothing but simple dressing was applied to the ulcers. *Part x., p. 98.*

Iodide of Potassium.—*Vide Therapeutic Action of*, by Lisfranc. Art. "Iodic Preparations."

Caustic of Sulphuric Acid with Saffron.—M. Velpeau has found that sulphuric acid with saffron forms an admirable caustic. The powerful cauterizing effects of the acid are not destroyed, but by the combination a black paste is formed, which hardens into a crust shortly after exposure to the air. The peculiar properties of this caustic are its combining great power, with facility of circumscribing its action, and it is stated also that the eschar thus formed, though deep, is quickly thrown off. In cancerous affections, the peculiar and disgusting fetid odor was quickly destroyed, nor did any bad effects, indicating its absorption, arise during its use.

Part xii., p. 301.

Sea-Bathing in Cancerous Affections.—Suggested as likely to be useful from the chlorine present. The use of salt, internally, it has been observed, is almost universally disliked by patients suffering under cancerous affections.

Part xii., p. 302.

Compression in the Treatment of Cancer.—Apply perfectly smooth disks of agaric, laid over each other, and retained in situ by a roller. (Recaumier.) Use a laminated plate of lead, modelled to the tumor, surmounted by graduated compresses. (M. Begin.) Dr. Arnott's plan of applying pressure by means of an air cushion and spring, is the best, as it makes equal and regular pressure on the tumor, and is applicable whenever a bony or other solid support exists behind the growth, where a point for counter-pressure can be had. Give the following internally: *R. Arsenici iodureti, gr. j.; ext. conii ℥ij.; M. in pil. xvi. dividend; j. bis die s.* Diet should be light and nutritious, and exercise moderate. *Part xiii., p. 165.*

Diagnosis of Cancerous Growths in the Living Subject.—[Lancinating pains, unequal surface, and the other local and general symptoms usually ascribed to cancer, are not sufficient for the purpose of diagnosis. As Dr. Bennett says:]

All these symptoms have, at various times, been proved to be connected with epidemic, fibrous, fatty, or cystic growths. In the living subject it is clear that the anatomical arrangement of the fibrous and cellular elements, observed in morbid specimens, can seldom be seen. We have no opportunity of obtaining a section. Still there are certain places where the detection of such cells as have been described, exhibiting their peculiar change under the action of acetic acid, will enable us to diagnose a malignant growth with certainty. Over most of the surface generally, for instance, where the diagnosis most concerns the surgeon, a group of such cells cannot leave us in doubt, because the epidermic scales in such cases never resemble them, as they do in internal organs, as the bladder, stomach, or brain. Thus, although anatomically, and in all cases, we cannot depend upon the form or even structure of the cell, as connected with the epidermis alone we can. Hence, to the surgeon, a minute examination is a more precious means of diagnosis than to the physician. Various ulcerated and fungoid tumors of the surface may be diagnosed with certainty, from an examination of the cells alone, whilst in fluids discharged from the stomach, bowels, or bladder, this means of diagnosis is not so certain.

Many instances are now on record, where in doubtful cases such an examination has determined the nature of the growth. Several have been lately published by M. Sedillot of Strasbourg, and others may be found in the works of Lebert and Vogel. There can be no doubt that many tumours and ulcerations exist, which, to the naked eye, and according to the ordinary symptoms, resemble cancer, although they are perfectly innocent. To all such growths, Lebert has given the name of canceroid. Among them may be placed many so-called cancers of the lip, which, on examination, are often found to be fibro-epithelial; many tumours of the breast which are either fibrous, fibro-epithelial, or cysto-sarcomatous; fungoid swellings of the dura mater; the ordinary fungus of the testicle, which Messrs. Goodsir and Syme have shown to consist of healthy granulations, and probably the so-called chimney-sweep's cancer of the scrotum.

Part xvi., p. 329.

Cancer of Lip.—Apply chloride of zinc to the sore, in the following manner: Mix together two parts of chloride of zinc and three parts of gypsum, spread the powder over the surface of the sore, protecting the edges of the healthy skin with vinegar, and in about a quarter of an hour apply a soft poultice.

Part xix., p. 205.

Cancer of the Uterus.—With a view to restrain the continued draining of blood, try the tincture of Indian hemp. Begin with five drops of Donovan's tincture of the resin, thrice a day, and gradually increase the dose to ten drops.

Part xix., p. 329.

Cauterizing Cancerous Tumors with Solidified Nitric Acid.—When cauterization is employed, it is recommended to perform it thus: A gelatinous paste having been procured by dropping highly concentrated nitric acid upon lint, a portion of this, of an appropriate size, is placed upon the part, and allowed to remain for fifteen or twenty minutes; it is then removed, and the part dressed with lint dipped in a solution of alum. The cauterization is to be repeated daily, first removing the eschar previously made.

Part xxi., p. 24.

Lupus.—Give phosphorus, in the form of phosphorated oil or ether, mixed up with powdered gum and mint water; or apply it externally in the form of ointment made with camphorated lard.

Part xxi., p. 250.

Remedial Efficacy of a very Low or Anæsthetic Temperature in Cancer.—Dr. Bennett has remarked that "in a cancerous growth, the tendency is to excessive cell-formation. We evidently retard its advancement by the application of cold. Were it possible, indeed, to bring down the temperature of an entire growth below the vegetating point, we must inevitably kill it; but supplied as it is through the warm blood within, this is impossible." The practice of congealing the parts, as a cure for cancer, has been attended with great success. Five minutes is the usual time to apply the congealing agent to the exterior of the body, when the skin and subjacent tissues are in their normal state; but it may be applied for fifteen or twenty minutes in the case of uterine cancer, and probably not with half the effect as when it is applied to the exterior, on account of the higher vascularity and natural heat of the part subjected to it. Congelation may be locally effected by mixing quickly half a pound of ice with half that quantity of common salt. This may be poured into a net of the thinnest silk gauze, and immediately applied to the part. The brine, as it trickles from the net, may be absorbed by a moist sponge.

Dr. Arnott gives the following case, illustrative of the benefit which may be derived from congelation in cases of uterine cancer :

The patient, M. R., was admitted at the Brighton Dispensary on the 25th July, 1849. Of short stature, thin, sallow complexion, and about 42 years of age. Her principal symptoms were frequent and severe paroxysms of pain, chiefly in the back and hips; a profuse and most offensive discharge and occasional hemorrhage from the vagina, and derangement of the digestive organs. On examination, the neck of the womb was found hard and ulcerated.

For six months, the usual palliative treatment was pursued—viz., the exhibition of the preparation of opium and the application of leeches. She complained that the opium made her constantly drowsy and unfit for her occupation as a needlewoman; and the pain was, notwithstanding its use, occasionally so severe as to oblige her to rise from bed and roll on the floor of her room.

In January, I determined upon a trial of congelation, having previously made another careful examination of the uterus. The disease had by this time considerably extended: the neck of the womb was now completely destroyed, and there were several warty excrescences in the upper part of the vagina. Congelation was effected by means of a frigorific mixture of two parts of finely pounded ice and one part of chloride of sodium, introduced through a wide speculum of gatta percha, having the lower part of its upper opening of a cup-like form; and in order that the temperature might be maintained at the requisite low degree, or below zero of Fahrenheit, the dissolved ice was continually drawn off by a siphon of peculiar construction. This peculiarity consists in a large two-necked bottle being connected with or constituting part of the long arm of the siphon; and the purpose of it is, that a stream of water may continue to flow along this part of the siphon, and keep up the suction at its proper extremity, notwithstanding any interruption in the supply. A tube of vulcanized india-rubber forms the remaining part of the siphon, with a small glass tube where it enters the speculum, in order that the rising column of liquid may be seen and regulated by a stop-cock.

The success of this application exceeded my expectation. So soon as I had learned to apply the frigorific properly, I was able to give immediate and entire relief, and this has generally continued complete for about a week. The discharge was soon diminished, and became much less offensive, and the tendency to hemorrhage ceased. From twenty to thirty applications of the frigorific have now been made, and scarcely any other remedy has been used. No advance of the disease appears, on examination, to have taken place, and in other respects there is decided improvement. The patient is not so thin; her appetite is tolerably good; she is stronger, and able to occupy herself in the usual household affairs.

She is directed to call whenever the pain returns. The speculum is generally introduced by herself while in the supine position, and she covers her extremities with a sheet before I enter the apartment. The nates are raised, in order that the speculum may be sufficiently upright to contain enough of the frigorific, which has usually been kept applied for a period varying from a quarter to half an hour. There is a slight sensation of smarting produced for a minute or two, and the pain from the disease has generally ceased within the first five minutes. If the womb be now inspected by removing the frigorific from the speculum, the greater part of its visible surface will be found perfectly white and hard. The application

is terminated by allowing about a quart of cold water to run rapidly through the speculum and siphon, for the purpose of gradually restoring the natural temperature and washing away any remaining salt.

Part xxii., p. 28.

Cutaneous Cancer of the Ankle—Amputation of the Leg.—The patient, a girl aged 24, suffered about fifteen or sixteen years ago, from a tumor about the size of a marble, on the right foot under the inner ankle, which was removed by Mr. Liston, but the cicatrix remaining from the operation never became white and firm, but was always covered with a thin dry scab. About four years ago, a second tumor formed above the first, which gradually increased in size, and at last burst, discharging some matter. The part was poulticed, but no relief being obtained, Mr. Holt removed the tumor, which was about the size of a walnut.

But it soon began to manifest greater activity, and to display its malignant and dangerous nature. The granulations, instead of being small and healthy, increased in size, and although attempts were made to destroy them by means of escharotics, they still grew larger, and a cherry-colored nodulated mass arose as large as an egg: in washing it she constantly removed small, black coagula. Yet up to a late period she was able to walk; she could not bear a boot to be laced on the ankle, and setting the foot to the ground when she rose to begin walking was very painful, but this over, she could go pretty well. As there appeared no probability of saving the foot, she was made an in-patient on the 7th of May, and on the 23d of June, Mr. Holt removed the leg between the upper and middle thirds. On examination, the disease was found to be confined almost entirely to the skin, having attacked none of the deeper-seated tissues, except the adductor pollicis.

No untoward symptom occurred after the operation, except a gland which suppurated on the inner and upper part of the thigh.

Part xvii., p. 247.

Chimney-Sweeper's Cancer.—It is stated that this disease is seen, perhaps, to a greater extent in the hospitals of London than in any other institutions in the world. Although it is supposed to proceed from soot irritating the scrotum, yet there are reasons to doubt whether the presence of soot, or any other dirt, is essential to the disease, as it is stated to have been seen in persons unexposed to the influence of soot; and the disease is unknown in Paris, where the lower orders of the population are infinitely filthier in their persons than the same class in London. In the following case, however, the patient had certainly been exposed to the action of soot.

The disease first appeared like a small pimple, the top of which he repeatedly scratched off; by and by a little fluid oozed from the abraded surfaces, which gradually increased in extent till about four months ago. At this time its development seems to have received a sudden impulse, and it speedily increased in size. He began to dress it with poultices, which produced free suppuration, and gave him great relief. He never applied to any one for advice, so that the progress of the disease was quite uninfluenced by any foreign applications. He was admitted into the hospital, under Mr. Holt, on the 2d of July, the growth having, by this time, attained the size of the tips of three fingers, and become very painful; the pain was of a lancinating character, and accompanied by beatings which gave him the sensation of the ticking of a clock.

As his health had now suffered considerably, he was operated on four days after admission, the incisions being made transversely. Some hemorrhage took place on the 8th, which impeded the progress of union by the first intention, but, by the 20th, the cicatrix had formed firmly, except over a minute line; the case may, therefore, be considered as having terminated favorably, though only a long period of time can assure us that there is no danger of relapse. The patient, however, leaves the hospital in a most gratifying state of improvement.

Respecting the mode of growth by which the scrotum is replaced, there seems some obscurity. Mr. Liston says, "it is astonishing how completely and in how short a time these glands (the testicles) receive a new covering at the expense of the surrounding healthy skin." The fact is well known, but we have not been able to meet with any very satisfactory account of the manner in which it occurs. In cases like that we have just recorded, where a small portion of the scrotum is removed, it is very easy to imagine how this structure, loose and extensile, may be greatly stretched by the pull of the ligatures; but there are facts which tend to show that, independent of this, the scrotum would of itself cover the testicles. Mr. Lynn, on one occasion, removed the whole of the scrotum, and yet the testicles were soon covered. *Part xxii., p. 248.*

Treatment of Lupus.—Dr. Thomson relied on three medicines—iron, iodine, and arsenic, with biniodide of mercury, and the occasional use of cod-liver oil and quinine. If the general health was at all lowered, and if there were any anæmic symptoms, cod-liver oil and iodide of iron were given for ten or fourteen days. After this, the alternate treatment was commenced, by giving the biniodide of arsenic in one-twelfth of a grain. If gastrodynia came on, the medicine was left off, and opium and hydrocyanic acid administered. Conium was also found useful, and frequently mixed with the biniodide. If the latter could not be borne, then the liq. potassæ arsenitis was given in small doses, from four to eight minims, and iodine was rubbed in over the healthy skin, to promote absorption. Dr. T. occasionally applied the strong nitric acid to the edges of the ulcer, or a strong solution of the nitrate of silver (ʒij. or ʒiij. to ʒj. of water) over the tubercle, and subsequently acetate of lead wash, to lessen the temporary heat and swelling which followed. If unhealthy pale fungous granulations arose, an ointment of iodide of sulphur, or a very weak ointment of the biniodide of arsenic, or of either of the iodides of mercury, was employed. *Part xxii., p. 255.*

Effects of a Bread and Milk Diet on a Supposed Malignant Tumor of Eight Years Standing.—This case occurred in the person of Dr. Twitchell, one of the most celebrated medical practitioners in New England. Carcinoma had prevailed in his family, and during his studentship he had suffered first from dyspepsia, and then from severe asthma, which entirely left him after he had abandoned the use of meat, and confined himself to a vegetable diet on account of an æne with which he was troubled. After nine years of such abstinence, he gradually resumed the moderate use of meat. The local disease in question commenced about eight or ten years since, as a small hard tumor at the inner angle of the eye, which slowly but gradually enlarged so as to become very conspicuous. The greater part was excised, but the wound did not heal, and another operation, followed by the use of nitrate of silver, was performed. Eventually the ulcer which resulted assumed a decidedly malignant aspect, and the gene-

ral opinion of the eminent men he consulted at the meeting of the Medical Association of Philadelphia, in May, 1847, was, that the disease was of a very serious character. A variety of local applications having been tried, Dr. Twitchell, starting from the theory that malignant diseases arose from the taking too much carbon into the system, resolved to limit himself to a bread and milk diet, and to this he henceforth strictly adhered. He took from four to six ounces of cream, or the richest milk, and as much white or brown bread, three times daily. The immediate results were a cessation of the pain, a diminution of the discharge, and an arrest of the spread of the ulcer—this eventually diminishing, and then altogether disappearing. When Dr. Bowditch saw him, August, 1849, no difference could be discerned in the angles of the two eyes, unless by a person already aware of the former existence of the ulcer, who would then perceive a small soft cicatrix. A perfect cure of what all thought to be a malignant disease of ten years' duration had thus been accomplished by this diet, commenced when the patient was 68 years of age.

Part xxii., p. 238.

Lupus Exedens.—Mr. Hunt, imagining that from the improvement in this disease, by the local application of arsenic, being only of short duration, it must have arisen from the absorption of the drug, was led to administer the remedy internally, and the experiment was attended by the best results. In lupus non-exedens the internal use of arsenic was by no means so well marked.

Part xxiii., p. 245.

Treatment of Lupus by the Topical Application of the Bi-ioduret of Mercury.—M. Cazenave, after trying a variety of local applications in lupus, has come to the conclusion that none is more efficacious than the bi-ioduret of mercury. After a certain number of applications of this drug, with the transient local inflammations which it excites, he has seen the hypertrophied tissues, as it were, dissolved, the tubercles disappear, and soft cicatrices form. He has, in fact, seen the most repulsive cases heal, with no more disfigurement than arises from a patchy discoloration of the integuments.

The application in general is not painful at first, but it is soon followed by severe suffering, which lasts from six to twelve hours. The pain is accompanied by erysipelatous redness of the parts adjacent; but the redness and swelling subside in three or four days. The iodide of mercury then forms a crust with the exudation which it occasions, and on falling off displays a smooth cicatrix. The same effects follow the application to lupoid ulcerations.

The bi-ioduret of mercury may be dissolved in ether, incorporated in an ointment, or suspended in oil. M. Cazenave prefers the latter. As the application is painful, and requires to be repeated five or six days, he recommends that only a small space should be touched at once.

Part xxiv., p. 250.

Epithelial Cancer.—The skin and mucous membranes are their seat; and the disease generally attacks those parts most liable to abrasion of the cuticular surface: thus the several narrow parts of the mucous canal, as the œsophagus, behind the larynx, the pylorus, and the rectum. The disease runs a peculiar and almost constant course; it commences as a tubercular elevation, which spreads slowly along the mucous tract, interfering with the functions of the part, and sooner or later taking on an ulcerative action. The disease progresses by extension, and often remarkably slowly.

but frequently it will assume a more rapid course, if any local irritation be set up; it generally kills by its local influence, and not by constitutional contamination. In the inspection of all the cases of this class that Dr. Barlow, at Guy's Hospital, had an opportunity of seeing, there has been found no trace whatever of malignant disease in any part of the body, thus at once characterizing the disease as one of purely local cancer.

Part xxiv., p. 323.

Epithelial Cancer of the Female Genitals—Operation—Recovery.—[No history of syphilis. Menstruation had ceased a year. Ten years before, a numbness had been felt in the external genitals, and afterward upon the upper and inner surface of the left labium, a small, hard swelling, of the size of a pea, was noticed, which slowly spread, softened, and became an ulcerated surface. Latterly it had become so painful as almost entirely to prevent sleep.]

Dr. Oldham writes: "There is a deep excavated ulcer, of the size of a crown piece, with a rough, hardened and uneven base, which has destroyed the clitoris, and has extended to the upper part of both external labia, leaving the lower part quite free. The upper margin of this malignant sore has a hard elevated edge. The nymphæ are not implicated, but this structure bounds the lower edge of the ulcer. The vagina and uterus are free from disease; and on the most careful examination, there is no evidence of malignant disease either in the neighboring lymphatic glands or elsewhere." Ordered:

R. Potass. iodid. gr. iv.; liq. potassæ, minim. x. ex inf. cascaril., ter die; lot. liq. calcis c. opio; morph. acetat. gr. $\frac{1}{2}$; o. n.

Dr. Oldham thought that the parts might be removed; and Mr. Poland proceeded to the operation.

The patient was placed on the operating table, in the position for lithotomy, and under the influence of chloroform. The whole of the mass was grasped with the left hand, and the entire disease removed with one sweep of the knife. Not much hemorrhage ensued, and only five arteries required tying. Pressure with a T bandage applied. On the following day the urine had to be drawn off; but considerable difficulty was experienced in finding the orifice of the urethra, as its upper margin had been just shaved by the knife, and the urethra had retracted and was hidden by the wound. The woman progressed favorably, she had not a bad symptom, and the wound healed up by granulation very rapidly.

Remarks.—Epithelial cancer is an exactly similar disease to that of chimney-sweeper's cancer; the one being an epithelial disease of the skin, the other of the mucous membrane. Both, if unchecked, progress by extension and destroy life, either by exhaustion, in the shape of a large, ulcerating, serous-discharging sore, or by extension along the lumber glands. They are purely local diseases, but unfortunately liable to a return.

Part xxiv., p. 324.

Cicatrization after Excision of Cancerous Tumors.—M. Grusell has lately intimated to the French Academy of Sciences, that charpie suspended in a decoction of oak bark for some days and then dried, forms an admirable dressing after the excision of cancerous tumors, as it preserves the simple condition of the wound, and obtains rapid cicatrization.

Part xxiv., p. 343.

Lupus Eredens.—Apply a solution of nitrate of mercury in concentrated nitric acid with a glass brush over the whole diseased surface, including all

the surrounding tubercles, and over this point a thin coating of prepared cod-liver oil. The above solution is prepared by dissolving one ounce of mercury in two ounces of pure nitric acid. A teaspoonful of cod liver oil may be taken three times a day; and a pill every night containing one grain of calomel, with one-third of a grain of opium.

Part xxvi., p. 292.

Treatment of Cancer.—M. Devay, of the Hôtel Dieu, Lyons, has long been engaged in investigating the therapeutical properties of codian cancer, being of opinion that Storc's experiments should be resumed, with the aid of the improved chemical knowledge of the present period. He finds the best preparations to be an extract and balsam, containing 1 per cent. of conicine, made from the seeds of the plant, gathered when at maturity, of full weight, and of ash-grey color. As the result of his researches he states: 1. That an ointment applied externally, in chronic enlargements of scrofulous glands, possesses a resolvent power greater than that of any other substance. 2. In engorgements of the uterus, or inflammatory hypertrophy of the organ—so frequently complicating its prolapsus or deviation—this medicine, employed internally and externally, is of great service. 3. In cancerous affections it exerts remarkable calming effects, and in some cases even cures seem to have resulted from its employment, especially in the atrophied form of scirrhus. Its use is less satisfactory in soft and rapidly increasing tumors, but the progress of some of these has seemed to be retarded. In other cases, it has diminished the size of secondary tumors, rendering the primary ones more amenable to surgical operation. As a means of assuaging suffering, whether used topically or taken internally, it is invariably preferred by the patients to opium and all other narcotics.

M. Manec, surgeon to the Salpêtrière investigated the action of Fricé Cline's arsenical paste in more than 150 cases of cancer, in some of which he obtained unhoped-for results. His experience leads him to these conclusions: 1. That the arsenical paste penetrates the cancerous tissue by a sort of special action which is limited to it. This action is not simply eschrotic, for beneath the superficial, blackish layer, which the caustic has immediately disorganized, the subjacent morbid tissue seems struck with death, though it may retain its proper texture, and almost its ordinary appearance. Later, the cancerous mass is separated by the eliminatory inflammation which is set up around its limits. The same paste, which extends its action more than six centimetres deep in a cancer of close texture, when applied to superficial gnawing ulcers, usually only destroys the morbid texture, however superficial this may be, and respects the sound parts. 2. The absorption of arsenic is proportionate to the extent of surface to which it is applied; and as long as this does not exceed a two-franc piece in size, there is no danger from this source. A large surface should only be attacked by successive applications. 3. Arsenic which is absorbed is chiefly eliminated by the kidneys, during a space of time of not less than five, and no more than eight days, as amply demonstrated by Pelouze. Thus, if we allow nine or ten days to intervene between successive applications, all danger from absorption may be avoided.

M. Gozzi strongly recommends the following caustic for the destruction of cancerous growths: Corrosive sult., ℥j.; caustic potass., ʒss.; arsenic and cerussa, aa., gr. vi.—to be made into a paste with starch and white of egg. While using this or other caustics, emollient poultices, ointments,

etc., should be avoided, as diminishing their effects, unless the irritation produced by their application has been excessive. M. Gozzi objects to the usual plan of destroying the tumor, layer by layer, from the apex to the base, the latter becoming very indurate after these repeated applications, and offers great obstacles to the approximation of surrounding granulations and their cicatrization. He prefers applying the caustic laterally, in the direction where the tumor seems most inclined to separate.

M. E. Cazenave speaks very highly of a caustic formed by pouring hydrated sulphuric acid on powdered saffron. *Part xxvii., p. 41.*

Epithelial Cancer of the Tongue.—M. B., aged 69, thin and pallid, but not markedly cachectic, was admitted into University College Hospital, on account of a gradually increasing tumor at the tip of the tongue, which she had first noticed as a firm pimple two years previously. It was nearly circular, an inch and a quarter across, and extremely hard. No actual ulceration existed, but its surface was smooth and red, and its edges very irregular. On the left side of the tongue, near the root, was a patch of superficial abrasion, the size of a shilling, presenting a healthy surface, and unattended by induration. None of the submaxillary glands were sensibly enlarged. She had lost all her teeth, and been restricted to soft food for a long time; her pulse was feeble, 96; and, during the last few weeks, her strength had perceptibly declined. The malignant character of the disease had been recognized from the first, and its removal recommended, but she had declined to submit to it; finding, however, that it increased in size, and was becoming the seat of aching pain, she was now anxious to get rid of it. As the indurated lump was the part alone productive of discomfort, and as the other patch possessed no cancerous characters, it was decided to remove only the former.

A needle, armed with a double ligature of thin whip-cord, was passed through the middle of the tongue, a little behind the diseased mass, and the two halves of the string tied as tightly as possible on the opposite sides of the organ, so as to strangle the whole of its distal portion. The operation was conducted under chloroform, and was productive of very slight hemorrhage.

For the removal of tumors of the tongue, the surgeon has choice of three methods, each possessing peculiar advantages: amputation by the knife gets rid of the whole mass at once; strangulation by means of ligature prevents any loss of blood; excision performed carefully with a wire heated by galvanism accomplishes both these objects at the same time. As the latter instrument appears to be easily manageable, it is not improbable that it may, when better known, in a large proportion of cases, supersede the other two. It must, however, be admitted, that, unless handled carefully, and made to cut its way very slowly, the risk of the bleeding is not obviated, as it is necessary to that effect that it should have time to cauterize the parts as it divides them. *Part xxvii., p. 367.*

Arrest of Consecutive Hemorrhages in Cancer of the Neck of the Uterus, by the Perchloride of Iron.—We have employed, observes M. Remilly, the perchloride of iron to arrest the uterine hemorrhages which so frequently accompany cancer of the neck. It is administered by injections, in the strength of 15 of the perchloride to 250 of water. The dose required is usually 15 grammes of the perchloride (5 drachms English). A woman, aged 60, suffering from cancer uteri, voided daily large clots of

blood from the vagina, some as big as the fist. Two injections (Sept. 12, at the interval of five minutes, sufficed to arrest the hemorrhage for three days. On the 15th, the blood flowed again, when two fresh injections were administered with success. On the 16th and 17th, the injections were continued without any recurrence of hemorrhage. On the 18th, the patient, who had lost no more blood, became pale and faint after the second injection,—symptoms which seemed referrible to the remedy, as the external organs of generation were temporarily swelled. She soon, however, recovered; and, from October 26 to November 19, has remained free from any return of the bleeding.

M. Remilly remarks, that not only does the injection relieve the patient from troublesome and often offensive discharges, but that it retards the progress of anemia, and prolongs her existence. *Part xxix., p. 300.*

Cancerous Affections of the Os Uteri.—[In a paper read before the Surgical Society of Ireland, Dr. Johns draws the following deductions from his investigations into the best modes of treating these diseases.]

1. That cancerous affections, when confined to the cervix uteri, are in many cases successfully treated by removal.
2. That the only chance of preventing a return of the disease is to remove in a healthy part of the cervix from which it grows.
3. That the best and most expeditious operation is amputation of the cervix in a part free from disease.
4. That as hemorrhage is very likely to follow such an operation, a ligature ought to be thrown around the cervix, as high as possible, for twenty-four or thirty-six hours before amputation.
5. That cauliflower excrescence is a disease to which this treatment is very applicable, as it rarely if ever extends beyond the neck of the uterus, and as it is one of the forms of cancer which is least liable to return after the excision of the parts.
6. That amputation of the cervix, in hypertrophy and such like affections of this part, which are curable by simpler means, is not justifiable.
7. That extreme prostration alone, or enlarged superficial inguinal glands, ought not to be a bar to operation.
8. That as inflammation in many forms is likely to follow this operation, an appropriate preventive treatment ought to be adopted.
9. That the use of the actual cautery expedites cicatrization after the removal of the cervix.
10. That as amenorrhœa and dysmenorrhœa are likely to follow on extensive ulceration of the os and cervix uteri, and also when these parts have been removed, the uterine sound ought to be passed from time to time during cicatrization, and for some time afterward.
11. That with a view to correct the cancerous diathesis, the patient might be put under a course of treatment for some time previous, and subsequent to, the operation.
12. That a particular form of vertigo is a frequent symptom, and an important diagnostic of uterine disease.
13. That as females suffering from uterine affections are very prone to intercurrent affections, which sometimes prove fatal, every means should be adopted to prevent their occurrence.
14. That in all cases of suspicious vaginal discharge, manual examination at least ought to be employed. *Part xxix., p. 301.*

Cancer of the Womb.—For the prevention of fetor use arsenical injections of the strength of from two to eight grains of white arsenic in a pint of water. Charcoal and other disinfectants destroy fetor; arsenic prevents it.

The extraordinary influence of arsenical applications in cleaning cancerous ulcers is well known to those who have tried them. It is not necessary that they should be made to act as escharotics, since repeated dressings with a paste only strong enough to stimulate will effectually serve the end. The following prescription is that of the powder used by Mr. Startin at the Hospital for Skin Diseases for the purpose mentioned, and it differs, we believe, not very materially from one which was a great favorite with Dupuytren:

R. Hydrarg. chloridi \mathfrak{z} iss. ; hydrarg. bisulphureti \mathfrak{z} ij. ; acidi arseniosi \mathfrak{z} j. M.

This powder, made into a paste with water, is more or less lightly, as required, to be brushed over the sore, the application being repeated once a week, or fortnight, or month, as may be necessary. Mr. Lloyd's injection, in all probability, acts in the same manner on the sloughy, cancerous ulcerations concealed within the vagina. It must be borne in mind some real good is probably produced in addition to the prevention of fetor, since the diminution of discharge and sloughing will save the patient's powers, and perhaps, also, somewhat retard the growth of the cancer.

Part xxx., p. 209.

Frigorific Mixture.—Apply a frigorific mixture of ice and salt, for four minutes, so as to destroy the vitality of the cancer cells. Repeat this every few weeks or month. This may not remove the hardness, nor the tumor of scirrhus, but may destroy its life and its malignancy.

Part xxx., p. 251.

Use of Acid Nitrate of Mercury, in Lupus.—The acid nitrate is one of the most efficient and convenient forms of caustic in this disease. Mr. Startin does not, however, employ it solely, but uses also the biniodide of mercury, and a paste of which arsenic is the principal ingredient. The acid nitrate is chiefly used in indolent tubercles, and to indurated patches not actually ulcerated. After ulceration has occurred the arsenical paste is preferred.

Part xxxi., p. 240.

Diagnosis of Cancer and Cancroid Growths.—[The clinical features to which the deposit of the cancer cell gives rise, are varied considerably by the age of the patient, the locality of the growth, and by the activity of its life. Cancers are divided into encephaloid, scirrhus, and colloid.]

The last has been of late discarded as a distinctive variety. It is now considered to be rather a condition, or stage of degeneration, in certain tissues, and is not absolutely confined to cancer, although it is generally associated with it. It consists of a gelatinous substance, devoid of organization, or possessing only the remains of it along with cancer cells; sometimes the latter are deficient, and the colloid substance appears to be merely the degenerated remains of fibrous tissue; hence, some suppose it to exist in cancer only, as the debris of the stroma of the tumor. These are speculations into which we need not enter here, for colloid tumors generally occur in the internal organs, intestines, etc., where they are beyond the reach of surgery. Small cysts, or granules of it, are met with frequently

in external scirrhus tumors, but do not in any way influence our diagnosis or treatment. The two other forms of cancer have been sub-divided, according to the fancy of writers, into many varieties: most of them present clinical features, and may be useful for the sake of description, but are not to be considered as fundamentally different from each other. Even encephaloid and scirrhus are terms rather of clinical than scientific import. The difference which these two forms of cancer present are similar to those presented by the acute and chronic types of other diseases, and they refer entirely to the amount of activity in the development of the cancer cell. The terms are, however, so ingrafted into our systems of surgery, that it would be mere pedantry to discard them, although the terms acute and chronic cancer have been adopted by some writers.

Encephaloid cancer consists of an aggregation of cancer cells, actively and rapidly developed; hence, in proportion to its rate of growth, we find the cells small, round, or oval, with comparatively few nuclei, and an abundance of the blastemal fluid. Free organic granules, and compound granular cells, are also observed, in proportion to the activity of growth. Hence, a section of such a tumor pours out a large quantity of light yellow, or pink milky fluid, in which all these elements are readily found. The fibrous stroma, or proper tissue, of the seat of disease is pushed on one side by the rapid accumulation of masses of these cells; it therefore appears to have a curvilinear arrangement, and is not abundant or dense. The whole tumor is lobulated, the margins of the lobes being curved and composed of this fibrous tissue stretched and displaced; a filamentous network, of varying density, intersects the lobule; the cut surface is pulpy, easily scraped down, or crushed into a pinky creamish fluid; and the entire tumor has a soft elastic feel, in the most acute cases almost amounting to fluctuation. Blood-vessels abound through the tumor, but not with regularity; for minute observations show that large masses, composed wholly of cells, must derive their supply from vessels in contact with their outer layer, by a process of endosmosis or percolation.

The external surface of such a growth will be nodulated and uneven, but with curving outline; the integuments covering it will become tense and discolored; their minute veins will be dilated, producing varicosities, on the most prominent points, with the enlarged veins ramifying over the surface, and running in a direction from the tumor. At a later period the skin may give way; as it does, it becomes incorporated with the tumor, that is to say, cancer cells are deposited in the interstices of its fibrous tissue. From the orifice thus caused, fungous granulations sprout forth, composed of cells (as all luxuriant granulations mainly are); from their surface a foul sanious or ichorous discharge is poured forth, which is composed of large quantities of broken-down cells floating in serum, or blastemal fluid, all in a state of rapid decomposition or putrefaction; pus corpuscles are also sometimes found, but not invariably, and they would appear to depend upon some accidental condition. Hemorrhage occurs as the result of violence of even a trifling nature, when the tumor is of rapid growth and soft. Occasionally, large masses of the diseased structure die by a process resembling sphacelus: the tumor arrives at a size in which the process of endosmosis seems insufficient to carry the nutritive fluid to those parts which are not in contact with vessels, while at the same time the force of the circulation is weakened by the destructive

influence of the disease, and by the waste which it occasions in the system; hence, large portions of the tumor seem suddenly to lose their vitality, and are cast off as sloughs. Unfortunately, this process does not check the disease: cancer grows most effectively, not in the centre, nor toward the surface, but in the circumference, where it is in contact with the sound parts; so that the part possessed of most destructive energy is left behind, and the disease spreads with increased force under the influence of the vascular excitement which the sloughing process has engendered.

Encephaloid cancer is, from its acute nature, essentially a disease of early and adult life. In the child, it most frequently attacks the contents of the orbit and the bones: in the adult, the glands, viscera, and genito-urinary organs. The female breast is, comparatively, rarely the seat of this form of cancer—at least in England; in France, and to a certain extent, in Ireland, it appears to be less rare. When acute cancer attacks the old or the feeble, it seems to be peculiarly rapid and destructive in its character: it prostrates the strength and destroys the energies of the wretched patient; it seems as if the vital force were concentrated on the morbid action, to the interruption of all healthy nutrition, and the disease runs its course with great rapidity. Scirrhus differs from encephaloid in many particulars, such as size, form, density, etc., all differences are, however, referrible to its chronic nature. The cancer cells are more rapidly developed, and attain a larger size; nuclei, which have not yet become cells, abound; cells of every variety and shape, but more particularly fibriform and cuneate, are observed, as well as fragments of cells, shrivelled or filled with oil globules. There are few organic or compound granular cells, and but little fluid; the fibrous tissue of the gland, or other seat of the disease, is hardened and condensed by the long-continued irritation, and its contractile force tends, in some measure, to check the amount of interstitial deposit: hence, a section of scirrhus tumor presents a surface intersected by straight, or radiating white lines, especially in the breast, where the fibrous remains of the milk-ducts run in all directions from the nipple; the loculi, or interspaces, are small, and somewhat angular; their contents are of a firm texture, of a pale, bluish grey color, semi-transparent, like horn, and glossy, and exude a small quantity of thin, milky fluid when pressed or scraped. The entire mass is remarkably tough, hard, and heavy.

Small collections of greenish yellow colloid or jelly-like matter are sometimes interspersed through cancerous tumors. Sometimes, also, larger masses of a yellow, cheesy, or sebaceous material are to be seen; the latter is found to consist of the remains of the contents of the gland ducts, such as the salts of milk and fat, broken up epithelial cells, etc.; while the former is probably a form of degeneration of the fibrous basis of the tumor mingled with cells. Sebaceous matter and colloid are found in both acute and chronic cancer, but the sebaceous is found in larger quantities in the acute, and the colloid more frequently in the chronic type among external cancers. The external characters of scirrhus *in situ* are those of a tumor, in which condensation of structure and interstitial deposit are progressing with a certain amount of antagonism. Compared with the encephaloid, it is small and less elastic, becoming finally of even stony hardness and weight. At first it may appear isolated and rolling among the neighboring tissues, but it soon sends out processes

which draw in and fix the fibrous structure of the integuments, fascia, or muscles near it. The skin becomes rough and seamed with lines or indented in points; sometimes it has a hypertrophied appearance, such as it has when viewed through a pocket lens of low magnifying power. This is owing to cancerous infiltration, and is found generally in fat persons, the fibres of whose skin are not closely woven; such a cancer gets the name of lardaceous, the skin is dotted over with small granules of cancer, or it may be only of a waxy pallid hue, and deficient in elasticity; all these alterations of the integument are elements for an unfavorable prognosis. The tumor becomes fixed to the subjacent structures, and send processes which can often be felt toward the neighboring lymphatic glands. These at an early period are enlarged, and become the seat of cancerous deposits. It is a curious fact, of which no adequate explanation has yet been given, that engorgement of neighboring glands is more common in proportion to the chronic nature of the cancer. You may find large masses of encephaloid isolated in the tissues and not affecting the lymphatics, while even a small scirrhous growth rapidly poisons all the neighboring tissues of every kind.

Oedema of the skin in the vicinity is another symptom of advanced scirrhous. We see this in scirrhous of the breast, in which we have the arm and side hard and oedematous. Ulceration commences in different ways, not often by tension of the integuments, more by a crack or fissure, or by an excoriation in a fold of skin, where secretions, perhaps somewhat acrid, lodge and excite inflammatory ulceration; this is common in the breast around the retracted nipple. Sometimes a large portion sloughs off as in encephaloid, and from a similar cause, viz., inadequate supply of nutrition. In whatever way it commences, ulceration soon destroys all the less active and central parts, and leaves a foul irregular cavity, the depressed surface and elevated edges of which are hard, undulated, and inflamed. Cancerous deposit goes on in a constantly widening circle, and with rapidity proportioned to the inflammatory or excited action of the part. Ulceration follows in a somewhat narrower circle, and destroys the older parts of the infected tissues. A foul and copious discharge wastes day by day the strength of the patient, who, overcome by pain, at length falls into a hectic state, which puts a period to his misery. The pain of cancer is variable in degree, but always of a lancinating character. Sometimes it resembles the sudden dart of a fine needle at rare intervals; sometimes severe and constant pangs, as of the sharpest knife. There is another kind of pain complained of, when the tumor has been much disturbed by handling; this is of a deep, dull, aching character, and supervenes in an hour or two, lasting for the greater part of a day. The lancinating character of the pain is of value as a diagnostic symptom, when you are sure that your patient does not misapply the term, as is often the case. Other symptoms, which either belong or have been ascribed to cancer, will be considered, when we are treating on the differential diagnosis of cancerous and other tumors.

We shall now pass to *canceroid growths*. These are growths which possess a minute structure different from cancer, with external signs and symptoms more or less characteristic, and which resemble cancer in their clinical features, without being altogether so destructive. They hold a midway place between simple tumors and cancers. The former are mere redundancies, isolated hypertrophies; the latter are destructive interstitial

deposits, destroying not merely by pressure, but by an inherent tendency to convert the neighboring structures into their own substance.

Canceroid growths are as yet imperfectly known. *Anatomically*, they appear to be more hypertrophic than interstitial; even the epitheliomata, when carefully studied, bear out this assertion. *Clinically*, they resemble cancers, but are more slow of returning, or if they return rapidly, are confined to the immediate neighborhood of their original seat, and are accompanied with less waste of tissue and less constitutional disturbance than cancers. This is the general rule of such growths. Individual cases occur of great virulence and rapid destruction of life, and of general infection in distant organs, either after or without operation, and relapses after the most complete removals are frequent, sometimes at very short intervals, sometimes after the lapse of years.

The commonest form of canceroid is the epithelial tumor or *epithelioma*. This growth is found in all regions where mucous membrane and skin approach each other. It may be situated on the mucous membrane, the skin, or on both; it is also found on the skin in parts where moisture abounds, as in the genital organs; occasionally on the general cutaneous surface, as in that form of ulcer called the chimney-sweeper's cancer; never, according to Velpeau, in the female breast; and certainly very rarely in any gland as a primary affection. Its anatomical element is the common epithelial cell, arranged with an amount of regularity strikingly in contrast with the irregular disorderly grouping of the cells in cancer; this irregularity is only disturbed, when, by the accumulation of a great number of cells in a tube, follicle, or other cavity, those first formed are pushed into the centre; but a little care will always unravel the primary arrangement. When the growth occurs on mucous or moist surfaces, the rows of cells generally lie in parallel bead-like lines with marked regularity, and have a great resemblance in anatomical structure to simple warty growths. The characters of the epithelial cell are—small nucleus, small size and round-shape of cell when first formed, with subsequent enlargement and flattening when brought nearer to the surface, so that it comes to be the largest of all cells. Add to this, great delicacy and transparency of both cell-wall and contents, and perishable nature of the entire cell, and you have sufficient marks by which to distinguish it from any other cell, whether the result of healthy or morbid action.

Part xxxii., p. 43.

The alleged Cure of Cancer.—The topical use of chloride of bromine for the cure of cancer, has lately attracted much attention on the continent.

The formula of the paste used by M. Landolfi, is the following: Chloride of bromine, three parts; chloride of zinc, two parts; chloride of antimony, one part; chloride of gold, one part; powder of liquorice, sufficient to make into a paste. The principal agent is the chloride of bromine, which has lately been used by itself. Cancers of the skin, the epithelial variety, lupus, etc., are treated by a combination of chloride of bromine with basilicon ointment. M. Landolfi's view is to change a malignant ulceration into a simple one. For this purpose, he formerly left a piece of linen, spread with the paste, as long as a fortnight upon the part, but now he uses imbricated pieces of lint similarly spread, and leaves them only twenty-four hours. The surrounding parts are protected by an

ointment composed of one drachm of chloroform to an ounce of axunge. The author considers that the chloride of bromine acts, not only topically, but that the specific is absorbed and aids the cure. Hence he gives, as an adjuvant, a certain number of pills which contain a minute proportion of the chloride. When the pledgets spread with the caustic paste are taken off, after the above-mentioned twenty four hours, a line of demarcation is observed which separates the altered from the healthy tissues. Bread poultices are then applied, or else lettuce leaves, or basilicon ointment, which should be changed every three hours, until the eschar is thrown off, which event takes place from the eighth to the fifteenth day.

Part xxxii., p. 46.

Diagnosis of Cancer and Canceroid Growths. -Dr. Collis gives the following :

Epithelioma commences on the skin as a dry and scabby wart, which falls off from time to time, and exposes on each occasion an increasingly wide surface of ulceration. At the junction of skin and mucous membrane it begins as a chaf or fissure with indurated edges, and has a similar tendency to scab and ulcerate. When it originates on a mucous surface, it is either as a flat condylomatous wart, or as a deposit in the mucous follicles. Thus it is always as a local hypertrophy of the investing epithelium that it commences ; and from first to last it frequently retains this strictly local character. Many of these growths upon the skin are nothing more than hard horny masses of dry epithelial cells, which occasionally fall off, and are slowly replaced. These may be either prominent or flat ; we have frequent examples of them along the edge of the lip upon that part which is covered with colored skin, external to the line of moist membrane ; these are very harmless, and may last for many years unaltered in extent or depth, until accidental violence or inflammatory action excite them to spread. However, in the majority of epithelial growths, ulceration of the integument and deposit of epithelial cells in its substance takes place sooner or later. The skin splits into papillæ as in a wart, and the ever-increasing deposit of cells upon the surfaces of these papillæ, separates them more deeply and more widely apart. As these cells are wholly extravascular, and dependent on percolation for what fluid they draw from the economy, a process of disintegration is continually going on in them, and the surface of parts not subject to evaporation is soaked in the putrid remains of cells. How far this aids in the spread of the disease, by exciting inflammatory action and ulceration of the sound structures, it is hard to say. On mucous membranes, this tendency to ulcerate is very marked ; cauliflower growths from the uterus, for example, although prominent on the surface, and consisting of hypertrophies of the epithelial cells, have their seat on ulcerations, which may destroy large portions of the organ. The ulcers, when exposed, present jagged irregular margins and surfaces ; enlarged papillæ are visible during the early period of the disease when the surface is wiped free from discharge ; at the edges they may be detected at any period. The neighboring glands are affected irregularly ; sometimes not at all ; sometimes at an early stage. Upon the whole, the impression on my mind is, that the tendency to infect neighboring glands is greatest when the disease has its seat on the mucous membrane ; and least when it is on the skin ; but no positive rule can be laid down at present as to the local infection. General infection must be extremely rare, for

those who oppose the classification into cancer and canceroid, can bring very few satisfactory cases of general poisoning from genuine epithelioma. The disease often kills by local destruction and general waste, but without anything which can be called special or peculiar cachexia. When removed, even completely, it will sometimes return in an aggravated form and with rapidity; but this is quite exceptional; in the majority of cases in which the disease is removed completely, it either does not return, or does so only after a very long interval. All these facts show that there is much less tendency to general poisoning than in cancer, and justify us in classing it apart, especially as it is found to possess a different anatomical structure.

Another class of canceroid tumor, to which the general name of fibro-plastic is rather incorrectly given, includes several tumors of rare occurrence, and with slightly diversified peculiarities. The fibro-plastic cell is not the special element of any tumor of a canceroid nature, but the elements of these fibro-plastic growths resemble it more than any other cell. The fibro-plastic cell is found in all lymph which is undergoing the process of organization, and is consequently often found in tumors of any kind. The class of growths to which I now allude, are called by Mr. Paget fibro-nucleated, recurrent fibroid, etc. The microscopic elements of which they are composed, are small and very pale, they vary in diameter from the 1.1500 to 1.2200 of an inch. They contain a small nucleus, and have a tendency to become elongated into imperfect fibres, arranged in a radiating manner and little organized. There is no juice obtained from a section of these tumors; and although they bleed freely when cut, it would seem to be rather from some want of power in their arteries to contract, than from the number or size of the vessels contained in them. If squeezed or torn up, they break readily into little acini, which are individually remarkably tough and resistant. The minute fibro-cells appear to radiate from the point in each acinus by which it is attached to the rest. The tumor, which is situated under the skin, and I believe always unconnected with it, is firm, moderately elastic, irregularly lobulated, movable among the tissues, and solitary; it does not affect the skin nor neighboring glands, except by direct contact through the lymphatics, nor does it produce general cachexia independent of waste, as cancers do. Its strongest and most unaccountable peculiarity, is its frequent and rapid recurrence after the most complete ablation, after even amputation at a considerable distance from the original seat. It inevitably returns in from three to six months in the cicatrix, and requires repeated removal, which should therefore always be complete, but very sparing of the healthy tissues, and repeated early on the reappearance of the growth.

There are many other sub-varieties of both cancer and canceroid, but as we have not met with specimens of them during the present session, we must defer the consideration of them for the present. The main features of both classes of morbid growth I have endeavored to lay before you as fully as was consistent with brevity. I will now conclude these lectures with some remarks on the diagnosis of tumors, with a view to your guidance in the important points of operation and prognosis.

When a patient is presented to you with a tumor, you must note, first, certain circumstances relating to the individual; secondly, such properties of the tumor as manifest themselves to your senses; and thirdly, the effects

of the growth upon the patient. Then comparing these with each other, and with the anatomical structure and known characters of the various growths, you will eliminate such as are incompatible with your examination, and thus arrive at what the tumor is by ascertaining what it is not. First, then, you will note such circumstances about the individual as the age, sex, history, etc. As to age—infancy and childhood are liable to acute cancer, enchondroma, and strumous swellings. Adult life is the period for all hypertrophies, such as fibrous and fatty tumors, for the canceroids, and for the acute cancers in organs which are late in arriving at maturity, as the organs of generation. As the patient advances in age, slow-growing epithelioma and scirrhus become predominant. Cancer and canceroid form the vast majority of the tumors that are met with, if age be excluded from our consideration.

Sex exercises still greater influence on our diagnosis. When we glance at statistical tables, we find that cancers of the female breast and of the uterus surpass in numbers all other tumors in all situations put together. Of these, scirrhus of the breast and uterus form the bulk. We have a small proportion of acute cancer of the uterus, and smaller still of the breast. Women are also subject to innocent chronic mammary tumors of the breast; both sexes to epithelioma of the rectum and genitals; and men more than women to epithelioma of the lips and face generally. As regards temperament and appearance, thin, sallow, unhealthy-looking people are supposed to be more subject to cancer; but the largeness variety shows that the fattest people are not exempt from it. A melancholy, brooding disposition is often connected with cancer, as it is with any disease of perverted or deficient nutrition; but, on the other hand, to whatever amount cheerfulness of temper may be an item in favor of recovery after operation, it is little protection against the primary development of disease. There are sufficiently numerous and remarkable cases on record of both cancer and canceroid occurring in successive generations, to prevent our denying the influence of their hereditary transmission; but, at the same time, these are few in comparison to the total number of cases. I have seen curious and marked instances of the repetition of encysted tumors, which have just as much weight for hereditary influence as the facts adduced in its favor in the case of cancer. Accidental violence is in much the same category; it may give an impetus to a latent tendency, and a locus to the deposit, but no more. It seems to me very doubtful whether the statement is correct, that the adenoid or chronic mammary tumor has its origin in effusions of blood.

We now come, secondly, to the properties of tumors themselves. On this point I have said much that need not be repeated. The situation, size, weight, shape, and mobility or fixedness of the tumor; its duration and rate of progress; the color and alteration of the integuments; the appearance of the ulcer, if one exists, and the nature of the discharge; the solitary or multiple nature of the tumor; glandular irritation or infection in the neighborhood or at a distance—must all be carefully examined into and weighed. Acute cancer is rapid, and attains often a very large size, is heavier than any non-cancerous growth, is seldom multiple, implicates in time all neighboring structures, though it seldom poisons the glands when primary; and it almost always returns rapidly and extensively in the glandular and visceral organs after removal. Adenoid tumors are much smaller, very chronic, very movable, perfectly harmless, and never affect

the glands or the system, though they are sometimes multiple in the same breast or in both breasts. Scirrhus is small, chronic, of stony hardness, drawing in the skin, and all the fibrous tissues, into itself, and finally the muscles, and every other structure. Cancer in any shape does not ulcerate early. This distinguishes it from epithelioma, as the preceding symptoms do from adenoid, fatty, or fibrous tumors, and from the recurrent fibro-nucleated. Fatty tumors are easily known by their lightness, and largely lobulated surface, and scalloped edge. The most puzzling of all its physical characters is the cystic tumor of the breast, when combined with cancer, as it frequently is. Except in the plainest cases, it is impossible to diagnose by the hand and eye. The presence of cysts may be readily detected in many instances in which the cancerous deposit is small in amount, and veiled by the fluid contents of the cysts; and, on the other hand, the deposit of cancer may conceal the presence of cysts. Alterations of the integument, and the general symptoms, must guide us to the discovery of cancer; and, in the other case, if we are sure of the presence of cancer, we need not be so careful to diagnose the coexistence of cysts. I have seen simple cysts, the result of varices, mistaken for small fatty growths, and I really do not know any certain means of diagnosing them; but, fortunately, a mistake would be of no practical importance, as both tumors are harmless. To overlook cancer, in combination with cysts, would be more serious.

The last points to be considered in aid of our diagnosis, are the effects of the growth upon the individual: these are pain, cachexia, wasting. Pain we have already spoken of. Cachexia is of value in the diagnosis of tumors, if it appear before they ulcerate, as it generally does in cancers. In other diseases, inclusive of the canceroid, it does not appear till the patient is worn and wasted by discharge and loss of blood, by deglutition or absorption of foul matters, and inhalation of noxious gases, the results of ulceration and decomposition. Wasting may be included in these remarks on cachexia.

With regard to operation. Encephaloid is more often removed with temporary, or even permanent success, than scirrhus, but success is very rare, and when it returns it is with extreme violence. In the young, you will give every chance by removing early and freely. A respite of years, if not a recovery, is in a few cases secured; and where a premature and horrible death is otherwise certain, the duty of endeavoring to secure this chance is plain. In the old, or even in the adult, you have less hopes of success; still, operation is justifiable and proper, when the powers of life are not depressed, and the tumor easy of complete removal, without such loss of integument as will delay recovery from the operation. Scirrhus, though often removed, is not often, if ever, permanently cured. When it is adherent to the deeper parts, when the lymphatic glands are the seat of deposit, when the glands of the skin are the seat of small disseminated beads of cancer, or when its interstices are infiltrated, as in the lardaceous form, it is worse than useless to operate: relapse is certain and rapid. When the growth is very chronic and very small, in a weak atrophied individual, the chances are, that an operation will convert into an active agent of destruction a comparatively harmless tumor, which, if let alone, would have lasted for years, with little local alteration, and little injury to the patient's life. In these very chronic cases, removal does no good, and may do much harm. In epithelioma, the general rule is to operate if you

can remove all; relapse often occurs locally, but does not prevent a second or third removal. When the disease originates in mucous membrane, as in caneroid of the genitals or rectum, the tongue, or gums, you have little chance of permanent cure. In many of these cases, the addition of actual cautery to as complete removal as possible is a valuable aid. The cicatrix of a burn is not a favorable nidus for epithelial growth, and by its great contractility, it seems to check the hypertrophic deposit in its neighborhood. With regard to recurrent tumors, I have already said they must be removed as often as they appear, and with a little loss of healthy structure as is consistent with their complete eradication.

Part xxxiii, p. 43

Sprouting Cauliflower Cancer.—[The subject of these clinical remarks was a married woman, aged 44, who had had eight children. The disease had commenced eight months after her last confinement, and eight months before her admission into hospital, by pain in the axilla and shoulder; in the course of time a swelling was discovered in the breast, which gradually increased and became more painful. The mamma, though enlarged, was soft and elastic, very like chronic abscess; it ulcerated, and then the bleeding fungous mass sprouted out and increased rapidly; the axillary glands were enlarged—nothing gave her any relief, and, under these circumstances, Mr. Solly thought it best to remove the entire diseased mass, not with the hope of curing her, but simply to relieve her of her agony and the profuse foul discharge.]

This form of cancer has been called by some writers the soft cancer, in distinction to scirrhus, or hard cancer; by others, carcinoma molle-lare, or brain-like cancer; fungus hematoïdes, or bleeding fungus. It is that form of malignant disease which is more certain to return after an operation than any other; yet, notwithstanding this, it is often our duty to operate, not with the hope of saving life, but with the certainty of removing a loathsome mass, which makes life wretched. In many of these cases the operation prolongs life, though not to the natural period of man. The rule which I have found, on the whole, the most safe and judicious, in regard to amputation of the breast for malignant disease, is this: to operate in all cases in which your advice is sought in the early stages of growth, before the surrounding glands are implicated, and the patient's health not so much impaired as to render the immediate effects of the operation dangerous; to operate in cases like the present, where the growth of the disease is more rapid than the inroads upon the health of the sufferer; where a loathsome mass goes on sprouting, bleeding, ulcerating, discharging, and sloughing, to the infinite disgust and distress of the victim; where there appears no prospect of death putting a speedy end to her agony; and where the powers of life are so unequivocal that the operation does not threaten any immediate danger.

The cases in which I would not operate are those cases of scirrhus, stony cancer, which have been advancing slowly, silently, and painlessly for years, without much observation or anxiety on the part of the patient, and without any knowledge on the part of the friends; where a mass has gradually been formed, implicating not merely the whole mamma, but also the glands in the axilla, and sometimes the glands above the clavicle; attached to the pectoral muscle, and even to the intercostal muscles and ribs, before the surgeon sees it at all. In such instances, it is no charity

to operate. The disease often remains dormant for years, or it extends inwardly, with little outward ulceration; the patient at last sinks gently into the grave, from the constitutional depression of the disease, and not from a local drain. I would not operate when the patient is old and feeble, when the immediate effect of the operation is doubtful.

In the performance of these operations, you must not attempt to save much skin with the idea of getting the wound to heal rapidly with the first intention. When the disease returns externally, it is generally on the skin which forms the edge of the cicatrix, looking as if we might have prevented it if we had taken a little more of the integument. You must also be very careful to dissect the pectoral muscle very cleanly; do not leave any cellular tissue over it. In making your first incision, remember that you make it below the mamma, and then the blood flows away from your knife, so that you see each tissue more distinctly as you expose it. Examine carefully the surface of the wound, in order to satisfy yourself that you have left no palpable piece behind. Also make a section of the tumor. This enables you to see if you have removed a circle of healthy cellular tissue beyond its margin.

These cases, in private practice, are the most disagreeable and unsatisfactory that you can have to do with. Of course, your conduct will have to be guided alone by a strict sense of duty: you will neither be tempted to operate on account of the fee, nor tempted to refuse on account of the discredit which follows in consequence of a return of the disease. You will calmly consider what is on the whole best for your patient, swayed neither by her fears nor those of her friends, nor by the prejudices of the practitioner in attendance, if such there be to contend with. It is most important that the patient herself should not know all your fears and all your doubts; it is most important that one or more judicious friends should know your real opinion. In these melancholy cases, the husband is seldom the person who can be trusted. Fortunately for us, as no man living can say positively that the disease must return and must be fatal, we are justified in giving the sufferer the benefit of the doubt, particularly when hope itself may be the means of prolonging, if not of saving life.

Part xxxiii., p. 46.

Landolfi's Method of Treating Cancer.—Landolfi's treatment consists in transforming a malignant tumor into an innocent one by cauterization. His specific formula is composed of equal parts of the chlorides of bromine, zinc, gold, and antimony, mixed with a sufficient quantity of flour to form a viscid paste. The chloride of bromine is the essential ingredient. Before applying it, the healthy parts surrounding the tumor are covered with strips of cloth, smeared with cold cream; the specific paste must be spread on lint and applied to the part affected; it may be kept on for 24 hours, and when removed it must be replaced with a poultice, or dressed with basilicon ointment.

Part xxxiii. p. 48.

Cancer of the Œsophagus.—The following case, which terminated fatally, at St. Bartholomew's, deserves to be placed on record, as a well-marked instance of infiltrated scirrhus of the Œsophagus, arising suddenly, without assignable cause, yet suspected by Dr. Farre before the death of the patient:

G. K., aged 55, was admitted into St. Bartholomew's, with symptoms of general ill health, and complaining more particularly of excessive dys-

phagia, or inability to swallow. He stated that up to five months ago he was quite well; he might have been taken, indeed, as a model of good health; "he never knew what a day's sickness was," and would now be quite well, but that he was starved on account of his loss of food caused by the excessive pain in swallowing. Scattered over his skin were seven raised molluscous-looking spots, which first aroused the suspicion of Dr. Farre and Mr. Lloyd that the disease was of a cancerous kind. A probe was passed into the oesophagus, but was stopped by a very evident narrowing of the channel, and the use of the instrument was followed by hæmorrhage, so that it did not seem advisable to repeat the operation. The patient had the usual nutritious food prescribed, with milk and mild demulcents, but after much suffering, gradually sank.

The post-mortem examination, carefully conducted by Mr. Callender, was particularly interesting. The lower third of the oesophagus, as it joins the cardiac orifice of the stomach, was almost entirely obliterated by a mass of infiltrated scirrhus or cancerous disease. The lungs, though the man was stated to have been previously in perfect health, were filled at several points with healed or obsolescent tubercle; the liver also was filled with similar deposit. The small intestines, at one or two spots, were also obliterated by cancerous growths, leaving the canal of the gut not much larger in calibre than a common quill.

This form of disease in the oesophagus is somewhat rare. A similar case occurred at St. Bartholomew's in 1851. The disease, singular to say, began with pain of a severe kind, about the shoulder and lumbar region, ending in the most excessive difficulty in swallowing, which was not at all after death to depend on cancerous degeneration of the oesophagus. A case of marked encephaloid is noticed by Dr. Handfield Jones, which had proceeded to a considerable extent without producing any symptoms, as well as another instance of a man who had died of peritonitis, in which, at the post-mortem examination, a thick mass of encephaloid, ulcerated on the surface, just above the cardiac orifice, was accidentally found, extending for an inch and a half.

These cases, and some few others which might be cited, corroborate the suddenness with which the results of malignant disease make their appearance in this part, which is, as a general rule, free from any other morbid affections.

Part xxxiii., p. 163.

Cancer Removed by a Painless Method.—Besides the common mineral escharotics which are used in these diseases, there are others of a vegetable origin which have the advantage of painlessness. Among these may be mentioned oakbark, the *sanguinaria canadensis* and tannic acid. With local treatment, chlorine, either simply or in combination with soda, may be given internally as a tonic, and to stimulate the absorbents. The strength of the tannin solution may be about one ounce of the acid to half an ounce of water. This must be applied daily and freely to the ulcerated surface: it will not cause any pain, and in a week or ten days the slough will be cast off, leaving a granulating surface behind. The cavity left will not be so large as might be expected, because the application draws the sound parts so close around the slough, that they push it out further and further, so that the hollow is not so big as the tumor. Internally you may give fifteen minims of the chlorinated soda solution, in water three times a day.

Part xxxv., p. 254.

Treatment of Cancer by Dilute Solutions of the Chloride of Zinc.—The destruction and enucleation of an ulcerated cancerous tumor may be effected by the use of solutions of chloride of zinc, so weak as to be all but painless, and without necessitating the confinement of the patient to bed for a single day. The proper strength of the solution is about one part of Sir W. Burnett's solution of chloride of zinc with six parts of distilled water. Two more parts of water may be added if much pain is caused. Pieces of lint soaked in this should be applied and renewed every two hours.

Part xxxv., p. 269.

Use of Chloride of Zinc in the Treatment of Cancer.—Chloride of zinc should be made into a thick paste with some absorbent powder, such as gypsum, flour, starch, or the powder of althæa, or gum acacia, in the proportion of equal parts of chloride and powder; or two or even three of the former to one of the latter. It must be sufficiently viscid to prevent running, on account of the highly deliquescent nature of the chloride. Then, as to the mode of employing this remedy, mark out the extent of the disease, and if the skin be entire, destroy it by the acid nitrate of mercury or strong nitric acid, and afterward apply the paste; spread on lint of the proper size, covering the whole with cotton wool to absorb any moisture occasioned by the running of the dressing. The surrounding parts must be protected by a dressing thickly spread with spermaceti ointment, which may be mixed with as much chloroform as it will take up, to allay the burning pain caused by the action of the escharotic; an opiate will be required internally with the same object. Generous diet will be required, with wine or malt liquor, together with cod-liver oil and tonics, especially quinine, and the iodides of iron and arsenic, the latter with the view, if possible, of altering the cancerous diathesis. The following day vertical incisions must be made through the whitish eschar, and the dressing, spread on narrow strips of lint or calico, introduced by means of a probe to the bottom, and this must be continued daily, until the whole is destroyed. The tumor will thus be enucleated in about thirty days from the commencement, and the wound will heal very rapidly with a little simple dressing.

Part xxxv., p. 272.

Treatment of Cancer.—The hygienic measures necessary in the treatment of the non-ulcerated tumor are plenty of good wholesome food, a well-drained, well-ventilated house, pure country air, extreme cleanliness of person and clothing, with sufficient exercise and mental occupation and amusement; these will do much toward establishing a more healthy state of the system. Deficient action of the skin, kidneys, and digestive organs must be corrected, and if pain exists it must be relieved by opium or hemlock. A combination of iron and iodine, and the iodide of arsenic have both been exhibited with excellent effect in this disease, but the bromide of potassium given in doses of five or ten grains with cod-liver oil, is the most useful, the effects on the tumor being "really remarkable." The local applications which are of value are preparations of lead, iodine, and bromine. A formula much used in the Cancer Hospital is equal parts of liquor plumbi, almond oil, diluted acetic acid, and water. This preparation allays pain, and apparently hastens the absorption of the indurated tissues around the tumor. The use of solutions of iodide of lead or iodide of potassium in glycerine is very beneficial, and the solution of bromide of potassium in glycerine appears to be even more so. Dr. Arnott's freezing pro-

cess has reduced many large adherent tumors to a small, movable, indolent condition. Mechanical pressure is often very useful in the non-ulcerated tumor. This is best applied by an air-truss as invented by Dr. Neil Arnott, for by this means the support is perfectly uniform over the whole surface of the tumor. The amount of pressure must be regulated by a spring pressing on the back of the truss. When the tumor is ulcerated, Dr. Marsden recommends carrot poultices, to arrest the fœtor; but their application is rather painful. Should bleeding take place from the ulcerated surface it is best arrested by a solution of perchloride of iron. Except in cases of very free bleeding it should only be of sp. gr. 15°, as above this acts as a caustic. To the unhealthy fetid surface left after the separation of a cancerous tumor, a lotion of chlorate of potash is the best application. To relieve pain, opium given internally is the most effectual means; or an ointment of lead and a little morphia may be used, if the former means is not thought advisable. The sulphate of zinc is the most safe and effectual mode of destroying malignant growths about the female genital organs.

Part xxxvi., p. 33.

Manganese cum Potassa.—To obtain a healthy granulating surface to ulcerated cancerous tumors, having attachments to bone or to vital parts (and for this purpose alone is the use of caustics in this disease advisable), manganic acid, in combination with potassa as a base, is a most invaluable agent. The "manganese cum potassa" caustic is a dark-green powder, and may be applied very readily by means of a small pepper-caster. When used to reduce an exuberant growth, it must be applied in a layer as thick as the tissue to be destroyed, and then formed into a paste by dropping a little water upon it, after which some simple dressing may be applied. By means of carrot poultices the eschar drops off in three or four days. It is less powerful than other caustics, and it at once removes all fœtor from the ulcer. Crops of warts may also be conveniently removed by its agency.

Part xxxvi., p. 36.

Dr. Fell's Treatment.—If non-ulcerated, the skin must first be removed by some liquid caustic, as nitric acid. The tumor so exposed must be covered by a layer of chloride of zinc paste spread on linen. The following formula is used: R Sanguinaria canadensis, ʒss. vel ʒij.; chlor. zinci, ʒss. vel ʒij.; aquæ, ʒij.; pulv. sem. tritic. hibern., q. s. Mix, and form a paste the consistence of treacle. Through the slough so produced, incisions are to be made with the knife, and strips of cotton spread with the paste introduced daily, till the whole tumor is seriatim converted into one large eschar, which drops out entire in about twelve or fourteen days. To any secondary tumor, or enlarged lymphatic gland, the following ointment may be applied: R Sulph. zinci, ʒvj.; sanguinaria, ʒij.; myricæ cerifera, ʒij.; extr. opii (aquos.), extr. conii, aa ʒvj.; ungt. cetacci, ʒvj. Misce et fiat ungt. With this ointment, one containing iodide of lead may be applied alternately every twelve hours.

Part xxxvi., p. 37.

Glossed Cancer.—In those distressing cases of glossed cancer where deep and unhealthy ulcers exist, the best treatment is to apply powdered sulphate of copper by means of a camel-hair brush, about twice a day. Allow it to remain four or five minutes, then let the mouth be washed out with tepid water. A wash of borax may also be used frequently during the day. Under this treatment the ulcers sometimes slowly heal up and cicatrize.

Part xxxvi., p. 39.

Escharotic Treatment of Cancer.—Prof. Syme considers it a settled principle in surgical practice, that malignant tumors or sores should either be allowed to remain free from disturbance or completely removed, since tampering with them by irritating applications is the most certain means of exciting disease in the lymphatic glands or other textures. If caustic is ever used for destroying malignant textures, it should be, therefore, of such power and so employed as to strike at once to the root of the evil. Of all escharotics the best is sulphuric acid, made into a paste with fine sawdust. A solution of gutta percha in chloroform is applied to the skin for some distance round the part to be attacked; then a thick piece of the same material, with an aperture cut in it of the requisite size, and softened by exposure to heat, is pressed firmly so as to adhere everywhere to the surface thus prepared; a thin piece is next glued round the edge of the opening, so that, when supported by a stuffing of lint, it may form a wall inclosing the diseased part. Concentrated sulphuric acid, with about an equal weight of sawdust stirred into it, until the mixture assumes a homogeneous consistence equal to that of thin porridge, is lastly applied, in quantity proportioned to the extent of thickness concerned. In the first instance, as the pain is acute, opiates or chloroform may be used; but after a short while, so little uneasiness is felt, that the patient can easily allow the caustic to remain for ten or twelve hours, when it will be found that the whole diseased mass, though covered with skin and several inches in depth, has been reduced to a cinder, presenting the appearance of strongly compressed tow. Under poultices, the slough separates in the course of days or weeks, according to its depth, and the sore then heals without any trouble. If, therefore, patients, from an unconquerable dread of cutting, should prefer the escharotic treatment, or if the circumstances, on any other account, should seem to render this method eligible, the procedure just described may be found useful. *Part xxxvii., p. 26.*

Painless Extirpation of Cancerous Growths.—In the combination of long-continued congelation with caustic, we have a means of speedily extirpating cancerous growths, unattended with pain, and producing neither shock, inflammation, nor permanent debility. This mode of treatment has been fully tried in the cancer wards of the Middlesex Hospital.

In a case detailed to illustrate the mode of removal of cancerous growths by congelation, the following was the mode of procedure: The tumor (in the right breast) was congealed for two hours by a frigorific mixture, at a temperature ranging from eight to twelve degrees below zero, Fahr. This mixture, which was frequently renewed, was confined to the part by a cup or broad flat ring of gutta percha, having a short flexible tube, closed by a stop-cock issuing from its lower border. Immediately after removing the mixture, nitric acid was applied to the skin, and after the acid, a thin layer of chloride of zinc paste was placed on it and allowed to remain until the next day. There was no pain caused by these proceedings beyond a sensation of tingling on the application of the cold. The caustic was daily inserted (incisions having been made through the slough), yet the patient's general health remained undisturbed till she left the hospital. By this mode of removal, all shock or excessive inflammation are entirely avoided, besides the absence of pain. *Part xxxvii., p. 27.*

Cancer of the Tongue.—In a case which lately occurred at the Cancer Hospital, where the tongue was much enlarged, of an irregular mottled

color, with purplish discolorations here and there, and superficially ulcerated in two or three places, by means of careful attention to diet and the use of tonic remedies, together with the local application of powdered sulphate of copper, and the occasional use of a mild borax lotion, not only have the ulcers all healed, but the tongue is greatly reduced in size.

Part xxxvii., p. 22.

Epithelioma of the Prepuce spreading to the Glans.—It is of great practical importance to distinguish between two forms of cancer of the penis, for the reason that in the removal of one of them the patient *may* be altogether exempt from a recurrence of the disease, a matter not to be disregarded in the prognosis. Many patients have had the organ removed for cancer, which has not returned, most certainly, for many years. An instance of the kind is at present in University College Hospital, wherein the penis was removed six years ago, without the recurrence of the disease.

The two forms of cancer, then, which affect the penis are these: one is epithelioma, or epithelial cancer, which attacks the prepuce; the other is true scirrhus, which involves the penis itself. On careful examination of the cases which remain exempt for many years, they turn out to be epithelioma. On the other hand, when recurrence does early take place, the scirrhus form has been present. These distinctions were particularly insisted on by Mr. Erichsen, on the 2d of December, when a case of epithelioma affecting the entire prepuce, and encircling the glans penis like a collar, was submitted to the operation of removal. The disease had spread to the glans, having commenced in the prepuce, and had assumed considerable dimensions, of a fungous character. The man's general health was good, and no glands of the groin were affected. He had had a congenital phymosis, which he had slit up himself some years ago. Amputation of the organ was performed by Mr. Erichsen, with the removal of a good portion of penile integument, to prevent undue retraction of the stump within it.

Part xxxvii., p. 165.

Epithelial Cancer near the Eye removed by Caustic.—In this case the tumor was so close to the eye, that it appeared that the knife could not be used. A strong escharotic paste, consisting of strong sulphuric acid and powdered exsiccated sulphate of zinc, was employed. The exsiccated sulphate of zinc is the preparation used by Dr. Simpson of Edinburgh, and has proved in the hands of many surgeons a very powerful caustic when made into a paste with glycerine. It has, however, no power to act on sound skin, which requires previously to be abraded by means of a blister. The strong sulphuric acid, on the other hand, has been employed by Velpeau and others, when made into a paste with charcoal, which is inert, and is added merely to give consistency to the mixture. It occurred to Mr. Thompson to employ the two active agents in combination—viz., to thicken the sulphuric acid with the exsiccated zinc, and thus obtain a more powerful compound, and at the same time one which required no preliminary blistering.

In this case a thin layer of the paste had been applied six times, at about seven or ten days' intervals, with the result of most completely removing the diseased mass. In order to limit carefully the action of the caustic, which formed a paste of the consistence and appearance of mortar, the parts around were first covered with a thick layer of stiff cerate. In this

manner the application of the active agent could be managed with precision and nicety, and the margins of the eyelids protected.

Part xxxvii., p. 187.

Cancer.—In a great number of tumors there is a natural ebb-tide; at first they grow rapidly, then slowly, then remain stationary, and at last begin to waste, and may even almost disappear; sometimes the whole tumor may slough out. This is favored most of all by a hopeful state of mind of the patient, and is aided by certain hygienic measures; a good nourishing diet, with beer or wine; bark and hydrochloric acid or iron, as a tonic. The best local application is lead, either in the form of plaster or lotion, according to the state of the tumor. Do not waste time with looking after impossible specifics. The tumor is the natural reservoir of the morbid matter; if this reservoir be removed by the knife or caustics, the morbid material is distributed over the whole system, provoking a return of the disease in a more aggravated and uncontrollable form.

* * * * *

Carcinoma.—Professor Simpson recently removed a carcinomatous growth by applying around it, with a common pointed goose-quill, a thickish paste made of sulphuric acid and sulphate of zinc. The whitened and decomposed tissues were scraped through with the point of the pen, and the application made as before, so that in a few minutes the skin and a portion of the underlying cellular tissue were cut through. Two days afterward the remainder of the tumor was detached in the same way. The edges of the tumor rapidly cicatrized, and pushed the tumor out in a mushroom-like form, leaving a small circular sore. *Part xxxviii., p. 26.*

Cancerous Tumor Treated by Chloride of Zinc.—If for any reason the use of caustics be preferred to that of the knife, by the following means removal may be accomplished in half the time ordinarily occupied by such a process: Mix one part of chloride of zinc with two parts of arrowroot, and whilst the paste formed by the addition of a little water is still soft, roll into a thin sheet, which divide into arrow-shaped pieces of almost three inches long, and tapering to a fine point at one extremity. After drying, these pieces become quite hard. Whilst the patient is under the influence of chloroform, make a series of deep punctures round the circumference of the tumor about an inch asunder, and forcibly insert one of the arrows into each, taking care that the points from opposite sides meet beneath the base of the tumor. The vitality of the tumor is very rapidly destroyed, owing to the caustic being applied to the root, and not to the surface, of the tumor.

Part xxxviii., p. 26.

Cancerous Ulcers.—In a case of foul cancerous ulcer, at the Royal Free Hospital, the following lotion was used with great benefit; half an ounce of chloride of potash, forty minims of hydrochloric acid, two drachms of the sedative solution of opium, and a pint of water (twenty ounces).

Part xxxviii., p. 28.

Lupus.—There may probably be suspected, in most of these cases, a taint of hereditary syphilis. The greatest benefit will frequently be derived from the use of mercury, or calomel and opium pill, combined with the simultaneous use of cod-liver oil.

Part xxxviii., p. 173.

Fungous Hematodes—Gallic Acid in.—[The following case by C. Hunter, house surgeon at St. George's Hospital, is an interesting instance of the effects of an internal remedy on malignant growth: The patient was only eight years of age, and was admitted with a tumor about the eye of the eye itself, and situated behind, and consequently protruding forward that organ. It had only been apparent two or three weeks, and after his admission to the hospital rapidly increased—no operative measures being had recourse to, owing to its situation.]

As it grew larger, the eye being pushed before it, gradually dwindled, and became at last a shrivelled-up and hardened excrescence on the outer part of the protruding mass.

In the course of four months (from time of admission), the tumor had become as large as the head of a seven months fetus, and of such a size as to overlap the mouth, so that he had to be fed by a pipe at the further corner of it.

At this period the surface of the tumor was irregular but rounded, the greater part of the surface was in a raw, ulcerated condition, exceedingly vascular and constantly bleeding, often to such an extent that every attack appeared likely to be the last.

These hemorrhagic attacks were generally treated by cold, by pressure, and by the local application of blue lint. The boy was living on general diet and wine. After one of these attacks, more serious than usual, which quite bleached the face, and much weakened the pulse (always weak and rapid), I gave him gallic acid in four grain doses, in infusion of bark, to try, if possible, to arrest the bleeding.

Curious as it may appear, one month afterward, the gallic acid had been productive of the most marked effect, the tumor from that time had never bled once, nor even had there been the least oozing of blood. The surface of the mass became more healthy, less vascular, more solid, and *considerable diminution* of the tumor had taken place.

In recording this case, it is only meant as an instance of the palliative effects of a remedy on malignant disease; it is the more curious that the gallic acid has had the striking effect it had, because of the exceedingly vascular and raw state of the surface.

Part xxxviii., p. 264.

Canceroid Tuberculosis. Dr. Bubb reports the case of a man, aged 72, of temperate habits and good general health, who first perceived, 14 years before, a small pimple on the left side of the upper lip. It soon increased in size, began to ulcerate, and became very painful and irritable.

After having been unsuccessfully treated by other surgeons, and several times threatened with the "knife," he consulted the late Mr. Aston Key, who applied chloride of zinc to the ulcer.

This treatment appeared at first to be successful; but after a time the affection became as bad as ever.

On examination, Mr. B. found an ovoid-shaped and very cancerous-looking ulcer, with jagged edges, and somewhat hardened base, extending from the angle of the mouth to the left side of the nose. There was no discharge. He complained of pains "shooting upward to the eye, and downward to the throat, and great itching."

Mr. B. removed the scab with which the ulcer was thickly covered, and touched the surface freely with nitrate of silver, and continued this treatment until three months ago, with little or no result. He then had recourse

to the *acid nitrate of mercury*, applied weekly. The effect has been extraordinary. The ulcer is now quite skinned over, and appears to be cured.

Part xxxix., p. 43.

Cancer of the Tongue Removed by the Écraseur.—Dr. Reddy, physician to the Montreal General Hospital describes the appearance of the tumor as follows: It is of a dusky red color, irregular in shape, about the size of an ordinary walnut, occupying the right lateral half of the tongue to tip, a small superficial abrasion being near its centre; it has a nodulated uneven feel, presenting considerable resistance on pressure, and is most painful to the touch. None of the glands about the throat or neck are affected. By the aid of the microscope, well-marked cancer-cells were discovered in the juice, and in a minute portion of it that came away in the groove of the needle.

"The patient being chloroformed, a ligature was passed through the centre of the tumor, and the chain of the *écraseur* being made to include all the diseased part, I commenced the operation, a minute being allowed to elapse between each movement, at the expiration of 34½ minutes the part was divided and bloodless; a few minutes after she was able to speak indistinctly, but was free from pain. Visited her at nine o'clock, p.m., was free from pain, no signs of hemorrhage, tongue a little swelled, feels inclined to sleep."

[In the reports of progress on subsequent days, it is noticeable that no subsequent fever appeared, relief from pain, and tolerably rapid healing of the wound followed.]

Many object to the use of the *écraseur*, on account, as they say, of its not making a very surgical-looking operation, but in such cases as the above, it has decided advantages over every other means, and its chief value consists in its not incurring any risk of the free hemorrhage which often attends the use of the knife, while compared with the ligature it entails little or no suppuration, and you obtain your object at once. When operating, the person should be kept as steady as possible, since any sudden movement might cause the chain to tear the part, and thus give rise to bleeding; at least a full minute is necessary between each movement of the instrument. The ligature that isolates or that may pass through the tumor must be kept free of the chain, as at the close of the operation it may cause delay by preventing the divided part dropping off.

Part xxxix., p. 44.

CARBUNCLE.

Local Treatment of Carbuncle and Furuncle.—Mr. Flint has followed the method of treating the above diseases now advocated more than twenty years, and thinks the remedies may be almost termed "specifics." He says:

Considering these morbid actions as manifesting want of power in the vascular system of the parts affected, I sought for an application that would, if possible, assist or increase it, and at the same time not interfere with the natural excretions from the skin. This I found in the common lead or litharge plaster, spread on the white leather of the shops. There

is in lead plaster, besides its unirritating quality, a valuable property—that of promoting or inducing perspiratory exhalation from the skin. I always prefer using the plaster without any admixture or combination; and, if fresh, it has every requisite adhesive property.

The mode of application is the following: After spreading the plaster in the ordinary manner, it is to be cut in dimensions according to the size of the carbuncle or boil to be dressed; carefully observing that it is large enough to include from half an inch to two or three inches of the surface around the tumor. Where this is large and deep, as in a carbuncle from four to six or eight inches in diameter, the circumference to be embraced should be proportionately large; and the leather, in such a case, should be chosen soft and strong, in order to obtain an amount of adhesive mechanical support to the surrounding and subjacent parts, so as to enable them to originate and establish a new action. It must be well remembered that it is not enough, in any of these dressings, to cut the plaster the exact size only of the tumor. It is expected that some of the surrounding surface should be taken in also.

In twenty-four hours after dressing, favorable change in the appearance of the parts is generally discernible; and—what will be allowed to be a highly important result, in those cases where the local irritation is fast inducing a state of cerebro-spinal distress and lesion, likely soon to end in coma and death—it will often, in a less period of time, afford a mitigation of suffering which comes upon the patient like a charm, and restores him the rest and sleep to which he had long been a stranger. If the tumor be prominent or pointing in any part, a crucial incision is to be cut in the plaster, and placed directly over it, that the discharge may have free egress. If the tumor is not disposed to slough or suppurate, the application decidedly hastens the resolution or absorption of the effused matter.

In a boil the dressing is precisely the same as in a carbuncle; taking care that the plaster has sufficient hold of the tissues around—perhaps from half an inch to an inch. In general, no other dressing is required to the end of the treatment. The plaster must be reduced in its dimensions as the tumor lessens in size, whether it be by suppuration, slough, or absorption. In some instances toward the close, simple or calamine cerate may be desirable. The solution of the nitrate of silver, of the strength of ʒj. to ʒj., will also be found of great value as a cicatrizer; for I concur with Mr. Higginbottom, that there is no agent in surgery so useful for promoting healthy cicatrization or removing excoriations as lunar caustic. It likewise excels all other means in giving increased vigor and strength to a new cicatrix.

Part xxviii., p. 237.

Carbuncle.—Part Affected.—No single part of the body could perhaps be named on which carbuncle may not occur. Instances have presented themselves of late years in the hospitals on almost every possible locality. The feet, as far as our personal observation has extended, have been exempt, but Mr. Coulson has mentioned to us a case in which he was recently consulted, where the disease, in a severe form, was located on the dorsum of the foot. Its great rarity on the scalp is still observed. On the face, however, of late, the frequency of the carbuncle has been far greater than appears formerly to have been the case. When seated on the face, there is often present a more severe form of inflammatory fever, and the inflammation is less asthenic than in other regions. A series of most severe

cases of this description occurred about three years ago in St. Bartholomew's Hospital, and since then we have chanced on several other isolated examples of the same kind. A case in St. Mary's Hospital ended fatally after herniotomy, from the outbreak of an acute carbuncle of the lip. It was an observation of Sir Astley Cooper's, that when carbuncle attacked the head, it generally caused death. Though it must undoubtedly be admitted that the disease is by far more dangerous in this locality than in any other, yet recent experience does not support so sweeping a statement. In ten out of the thirty-five cases tabulated, the disease was seated either partially or wholly on the face, and the whole of them, notwithstanding, recovered.

The favourite seats of carbuncle are those in which the skin is thickest; the nape of the neck, the back and the nates, standing prominent in the list. Of the cases mentioned, in 12 it appeared in the nape, in 10 on the back and 2 on the buttock.

Constitutional Symptoms attending the Outbreak.—In very exceptional cases the disease was unattended by general disturbance, but in the large majority, inflammatory fever of a more or less severe kind was present. In these the patient lost appetite, became heavy and depressed, had a somewhat furred tongue, a quickened pulse, costive bowels and high-colored urine. In some of the more cachectic and elderly patients the depression was severe, and the fever tended to what is familiarly known as "typhoid" in type. It is but fair to attribute part of the constitutional disturbance present during the progressive stage of carbuncle, to the extreme pain almost constantly present. This will not, however, account for the whole, and the greater part is doubtless symptomatic of the carbuncular dyscrasia.

Duration, etc.—Carbuncle does not appear to observe any determinate course as to the length of its stages. The time occupied in attaining its maximum size varied in the cases before us from three to sixty days, its average being rather more than fifteen days.

Nature of the Slough.—Rokitanski has asserted, contrary to the general belief, that the core of boils and the shreddy slough of carbuncles do not consist of dead tissue, but are inflammatory exudations, like the false membrane of croup. Without at all denying that they may be in part so formed, we cannot avoid expressing an opinion that their bulk is really a slough.

General Treatment.—Give purgatives and alteratives, with stimulants or salines according to the constitutional disturbance. Incisions give great relief, especially when the carbuncle is spreading and painful; but if the pain has subsided, incisions are not required, but are even injurious.

Apply a solution of the nitrate of mercury in strong nitric acid (hydrarg. ʒj.; acidi nitric., sp. g. 1.50, ʒij.; solve) to one central spot about the size of a shilling or sixpence. It produces an eschar from beneath which the slough separates. For *boils*, the caustic answers even better than the knife; apply a full-sized drop to the apex of the boil.

Part xxxi., p. 186.

Turpentine in Carbuncular Diseases.—Dr. Thielmann states that he has employed this substance with great success in a case of malignant pustule, and in a great number of cases of carbuncle, amounting to 342 since 1837.

The treatment has been merely local, unless suppurating fever or other general symptoms called for interference. The turpentine was applied in every stage of the disease on a thick pad of charpie, evaporation being prevented by oiled silk. In most cases, a slight burning is at first produced, which only lasts for a few minutes. The epidermis becomes softened, and the mortified parts are quickly separated, without the necessity of the crucial incision. After the separation, it is still continued, as under its influence the healing is rapid. If, after each dressing (these being repeated night and morning), the patient complain of a continual burning, the lotion is to be sufficiently diluted with chamomile tea, or the dressing is to be performed with this alone. The turpentine is suitable to all sloughy and atonic ulcers. The following is the formula for the preparation of the application: Mix ʒj. of oil of turpentine with the yolk of an egg, and then add spirits of camphor ʒj., chamomile tea lb. j.

Part xxxii., p. 199.

Carbuncle and Boil.—Prof. Syne says:

Carbuncle is a circumscribed inflammatory condition of the true skin. It begins with a small red point, which gradually and rapidly extends, with a peculiar tingling and pungently-painful sensation, much greater than might be expected from the degree of morbid change apparent to sight. The skin becomes loosened in its texture, and swollen, so as to be an inch or an inch and a half in thickness. Small yellow points appear on the surface, and are presented by a section of the dermoid texture, interspersed in the interstices of its substance. These local changes are attended with a more than corresponding amount of constitutional disturbance, the patient being unable to sleep or eat, having an anxious expression of countenance, and presenting all the characters of excessive irritation. If the evil be permitted to pursue its course, it terminates in sloughing of the affected skin, and either death of the patient from exhaustion, or a very tedious recovery from the loss of substance which has been sustained. All sorts of internal remedies and local applications have little or no control over the progress of a carbuncle, and the only effectual method of cutting short its advance is to make a free crucial incision completely through the whole extent of inflamed skin. Immediately upon this being done, the redness disappears, and the pain ceases, the constitutional disturbance soon subsides, and the affected skin, unless already deprived of its vitality, quickly resumes its natural thickness and healthy action, so as to remove all obstacles from the healing process.

The patient now before you, tells us that, about a fortnight ago, a small red speck, like the head of a pin, appeared on his back, and quickly extended, so that at the time of his admission, the day before yesterday, the circumference of inflamed skin was equal to that of a small plate. The affected surface was slightly elevated, and of a fiery-red color, with yellow points interspersed. I made a free crucial incision through the thick and soft integument, which was studded with numerous yellow points, similar to those on the surface, placed pieces of lint between the cut edges, desired that a poultice should be placed over them, and restricted the diet to milk with farinaceous food. You now see that all the carbuncular characters have disappeared, and the patient says that he "has been mending every hour" since the incisions were made.

Reason and experience being so decidedly in favor of the practice here

employed, I should consider it unnecessary to say a word now upon the subject were I not aware that the most erroneous ideas in regard to the pathology, as well as treatment, of the disease, are extensively diffused. I deem it necessary to warn you against the four following errors, which are very generally entertained:

In the first place, I beg to remind you that the disease is not subcutaneous, but seated in the skin itself. Secondly, that the object of incisions is not to allow room for the escape of matters confined under the skin, but to extinguish the inflammatory action, through the discharge of blood and the relief of tension, by dividing the texture in which it is seated. Thirdly, that the application of caustic is the extreme of absurdity, since it directly insures what the great object of treatment should be to prevent, and by destroying the skin affected, instead of restoring it to a healthy condition, necessarily protracts recovery, and renders it less perfect. Fourthly and lastly, I beg to warn you against giving the patient wine and nourishing food, or employing local applications of a stimulating kind, so long as the inflammatory tendency continues in operation. The rapid progress which the poor starved creature you have just seen is making on his spoon diet must satisfy you that the weakest condition does not then require support, while the disease, so far from being limited to an impoverished state of the system, is more frequently met with in persons suffering from repletion. In both of these conditions the disease depends upon a peculiar morbid tendency, and so long as it continues, the effect of stimulants will certainly be to aggravate the evil.

It may here not be out of place to say a few words in regard to boils, which are very nearly connected with carbuncle. Like it they are seated in the skin, begin by points so small as to be hardly perceptible, and extend from the centre in a circumscribed form, with local and constitutional symptoms of disturbance greatly disproportioned to their extent. They are distinguished by being restricted to a smaller size, by presenting a more convex surface, and by tending to suppuration rather than sloughing. It is true that they contain a white substance, named their core, which looks like, and is often mistaken for merely dead cellular substance, but is chiefly the result of a morbid deposition. Fomentation and poultices may soothe the uneasy symptoms proceeding from boils, but the only effectual mode of checking their progress is to make a free crucial incision through the whole extent of inflamed skin which constitutes their base. It is often said that "opening" boils does no good, and this may be true, since the incision, like that for the remedy of carbuncle, must be directed, not with a view to evacuation, but to free division of the affected skin. The opinion generally entertained at present is, that boils should be allowed their course, under palliatives, with a liberal diet, and patients are frequently met with who have suffered for months, and even years, from their successive formation. Now it seems to me that nothing can be more injudicious than such a procedure, since each boil, instead of being extinguished by a timely incision in its infancy, is allowed to go through the whole of its irritating course with attendant constitutional disturbance, which instead of benefiting the patient's system must increase its derangement and liability to similar formations. *Part xxxiii., p. 231.*

Carbuncles and Boils.—According to Mr. Travers, the manner of operating by incision is neither requisite nor safe, and is much surpassed in

efficacy by the use of potassa fusa for this purpose. It should be fresh, and unaltered by exposure to the air, and may be inserted into a goose quill by way of handle. The best time for opening is when the skin has become dusky, and is perforated by pin-hole orifices, whence issues an ichorous oozing. To prevent the caustic running and destroying healthy skin, a dossil of dry flocky lint should be applied upon and around the part to which the caustic has been applied. The carrot poultice is the best that can be applied afterward, with a view of cleaning the sore, and a solution of chlorinated soda is very useful at particular stages of the sore. A weak caustic, like nitrate of silver, is of no use, but even prejudicial in these cases. *Part xxxvi., p. 129.*

Carbuncle—Incisions.—The great point to be observed in making incisions in anthrax or carbuncles, is to make them sufficiently deep to go through the inflamed skin and areolar tissue to the healthy parts beneath. If properly done, the flaps made by a crucial incision will be quite loose when taken hold of by the forceps, and will curl up and leave a widely gaping wound. *Part xl., p. 150.*

CARIES.

Local Treatment.—Caries, being a local disease, requires in addition to the internal use of cod liver oil, some special treatment. Burrowing sores, fistulous passages and particularly the ulcerations and swellings of the soft parts are so many obstacles against which internal treatment can do nothing. Compression, and stimulating the ulcerated surfaces by the solution of ioduret of potassium in alcohol and water, have been the means with which Dr. Tauffield has always succeeded in getting rid of these obstacles. *Part i., p. 43.*

Aphorisms of Practical Surgery.—Of all cases of caries, the most dangerous are those in which the *sternum* is affected, for, when once the spongy texture of this bone becomes diseased, very troublesome fistulas are formed, and the patient generally sinks under the effects of the disease.

Caries of the crest of the *os ilii* is a frequent cause of symptomatic abscess in the lumbar and sacral regions. *Part iii., p. 116.*

Removal of one of the Bones of the Metacarpus, the corresponding Finger being Preserved.—M. Blandin presented to the Academy of Medicine two patients from whom he had removed one of the bones of the metacarpus, but preserved the corresponding finger. The first case was that of a woman, the first metacarpal bone of whose right hand was affected with caries. The affected bone was cut out; and when the wound was healed and the cure completed, the thumb was found to be much shortened, but very useful, quite mobile, and sufficiently strong for most purposes. She was able to use the thumb for holding the pen or needle, and used it easily both in writing and sewing. The hand, indeed, was both less mutilated, and much more useful than if the entire thumb had been removed. This was the fifth time that M. Blandin had successfully performed this operation. *Part iii., p. 95.*

Rheumatic Caries of the Spine.—*Vide* Art. "Spine."

Scrofulous Caries.—Dr. Cotton remarks:

I have witnessed and experienced such excellent effects from the use of the trephine in cases of scrofulous caries of the shaft and extremities of the tibia with implication of the joints, that I think this instrument may be frequently and advantageously employed in such cases, as well as in those of thickening of the bone with severe intermitting pain, etc., recommended by Sir B. Brodie. In the case of a boy about to leave the hospital "cured," with an apparently sound limb, having been under treatment since September, 1845, and twelve months previous to entering it, for enlarged head of the tibia, effusion around the joint thought to be within it, partial necrosis of the shaft, ulceration of integuments, greatly thickened periosteum (*a condemned knee*), I pierced the shaft with the trephine twice, and removed portions of carious bone, and applied it once also to the head of the tibia, and gave exit to a perfect pool of sero-purulent matter, apparently proceeding from an abscess within the cancellated structure. A seton carried close to the side of the joint, supporting the constitutional powers, etc., in spite of an attack of phlegmonous erysipelas, served to complete the at present cure.

Part xv., p. 178.

Protein in the Treatment of Caries.—Mr. Tuson, in recommending Protein as a remedial agent in the treatment of caries, says:

Caries of the spine, pelvis, bones of the inferior extremity, superior extremity, head and face, have frequently been under my care. Various remedies and different applications have been employed; it is only within the last few years, however, that I have been able to find a medicinal agent to produce a permanent and beneficial effect upon caries of the bones; I am able now to state that I have been successful in this respect, owing to the researches of Liebig in the furtherance of organic chemistry, and the progress made in our knowledge of the formation of several parts of the human frame. The close identity and chemical composition of several parts of the animal body, according to the best authorities we are able to consult, clearly point out that dried blood, dried flesh, and other parts of the animal textures, correspond very closely in their chemical composition with protein, or that chemical basis which is essential to the formation of the various parts of the human frame, and which enters into the composition of the structure of every part, combined with other elements.

A boy was admitted under my care at Middlesex Hospital, with extensive caries of the metatarsal bones; it was considered necessary, upon consultation, to remove the bones by amputation; but, as the patient had enlarged glands of the throat, it was deemed advisable to improve his general health previously to the operation, and for this purpose I prescribed ten grains of protein twice a day. In the course of two months, the caries of the bones, for which amputation was considered necessary, was completely cured, and solely by the administration of protein, as the disease had resisted the action of all other means which had been employed for a considerable time previously. A youth was admitted with caries of the tibia and bones of the foot; it was considered by the surgeon who sent him into the hospital, that he must lose his leg; protein was prescribed, and he was discharged cured. Thus, then, from carefully watching the effect of this remedy, I was able to discover a very beneficial agent

for the relief of one of those diseases of the bones which few remedies accomplish; and, from repeatedly observing the result of the exhibition of protein in public as well as private practice, I entertain a very favorable opinion of it, as I have seen it successfully administered in very many cases that have fallen under my notice. Difficult cases of caries of the spine have been under my treatment, and have been cured by the exhibition of protein.

I have prescribed it extensively with very beneficial results, and can recommend it as a medicinal agent and one calculated to produce a favorable termination in most cases of caries; also in some cases of scrofula, extensive ulcers, debility, diseases of the gums and teeth, rickets, undue lactation, and insufficient secretion of milk. In infancy, where debility exists, and where the functions are not duly carried on, and in some affections of the spine, five grains once or twice a day will be sufficient for a child, and ten or twelve grains for an adult; and I have ordered it to be taken as a powder, dry or upon bread and butter.

In one or two instances, I must mention that I have found its effect rather inflammatory, and, should this result, it ought to be discontinued, active aperients administered, and such other remedies as the case may require. I have tested its tonic qualities, by administering it instead of quinine, wine, or beer, not in a solitary instance, but on several occasions; and where Nature has to restore the loss of any part, caused by extensive sloughing of the soft structure, I have found by its exhibition that the cases have rapidly improved and terminated favorably in a much shorter period than under the administration of other remedies.

Part xvii., p. 298.

Osteotrite.—For the removal of carious bone, either from the surface or from the interior of cavities, use the osteotrite, invented by Mr. Marshall; it consists of a handle similar to that of the common gouge, into which is fixed a steel shaft, terminating in a round somewhat conical head, which varies in size, but which possesses a series of spiral cutting edges, radiating from two points on the sides of the vertex. It is used by a rotatory motion, and cuts like a saw or rasp, and removes diseased structure with perfect ease. It does not leave behind it any loose splinters, and from its strength is not liable to break or slip.

Part xxxvi., p. 152.

CARTILAGE.

Ulceration of Cartilage.—This disease is hardly ever met with in the ball and socket joints, it is nearly entirely confined to the hinge-joints. The symptoms are deep-seated pain, generally increased during the night, uneasy sensations in the next joint, or even the whole limb, more or less swelling of a firm unyielding kind confined to the seat of the articulation. These symptoms may continue for weeks or months, and terminate either in recovery, with more or less stiffness of the joint, or in suppuration with caries. The treatment has generally been by leeches, fomentations, blisters, caustic, issues, but all these will often fail. The only remedy which may be depended upon with perfect confidence, is the actual

cautery, which may be drawn crosswise over the joint. The result is often surprising and satisfactory. *Part xxxiii., p. 298.*

CASTRATION.

New Operation to Supersede Castration.—Mr. Taylor having observed that the process of "sow-gelding" consists not in the removal of the ovaries, but in the simple division of the fallopian tubes, advises a parallel operation, viz., the division of the vas deferens (or the removal of a portion of it), to supersede castration in the male. He states that he has performed this operation successfully upon a dog. *Part xx., p. 165.*

CATALEPSY.

Catalepsy, or Trance.—Catalepsy is undoubtedly more a lesion of function than of structure.

Diagnosis.—This disease has been confounded with hystoria, ecstacy, asphyxia, apoplexy and syncope, tetanus and the state of death. The older physicians also mistook death from cold for catalepsy, and described cases of soldiers in a state of catalepsy riding into the camp on horseback, firmly seated like statues on their saddles. Here, death from intense cold formed a source of error.

From true ecstacy, catalepsy is distinguished by the patient labouring under the former disease being occupied in profound and sustained meditations. The faculty of thought, instead of being annihilated or suspended, is found exclusively directed towards the contemplation of a single object, entirely absorbed by one idea, with some imaginary pleasant object, the powers of imagination being augmented by an enthusiastic exaltation. Again, there are no convulsive movements, no rigidity, partial or complete, of the muscles; and, above all, the limbs, if placed in any position by the physician, do not retain that position, as they will in simple, and oftentimes in complicated catalepsy.

In hysteria the muscles are convulsed clonically,—that is, with motion; in true catalepsy they are convulsed tonically, that is, without motion; and in this rests the principal difference between the two.

Asphyxia is accompanied with suspension of the functions of respiration and circulation; the countenance is also ordinarily livid and swollen, the mucous membrane of the lips having a very dark hue.

Syncope is distinguished from catalepsy by the state of the muscular system, the limbs being extremely flexible—and this pertains also in a great degree to asphyxia—and by the general pallor of the countenance and surface of the body, consequent on the suspension of the heart's action.

Apoplexy is known from it by the stertorous or senorous breathing, by the more or less profound lethargy, by the lax state of all the muscles of the body, and also by the co-existence of paralysis.

Although tetanus has been mistaken for catalepsy, in consequence of the

tension and rigidity of the muscles, yet the fact that neither sensibility or the intellectual functions are interfered with, should have prevented such a mistake from being committed.

Patients laboring under an intense and prolonged paroxysm of catalepsy have been supposed to be dead, and have been interred alive.

There are numerous cases of this kind on record, and many more where the individuals, after being laid in their coffins, have fortunately recovered from the attack before the period of interment. In such cases, the respiration is insensible, and the heart's action is almost in abeyance; the surface of the body is nearly cold, and presents the pallor of death; and the articulations are stiff. Although it is no doubt a difficult task to distinguish this state of trance from the state of death, yet a careful examination of the body, and time, would lead to a correct diagnosis. The limbs, after death, are first lax, then stiff, and ultimately lax again. The stiffness of the limbs, known as the cadaveric rigidity, or *rigor mortis*, lasts for a longer or shorter time, according to circumstances; the sooner it supervenes, the shorter is its duration, and conversely. Now, the stiffness of the limbs accompanying this intense form of trance, supervenes at once, and lasts as long as the paroxysm continues. This is consequently a valuable diagnostic sign.

Again, as the heart's action most certainly continues in a slight degree during the attack, the stethoscope may be used with advantage to detect the impulse and murmurs. The state of the eyes and the expression of the countenance, as well as the circumstance that the temperature of the body may be sustained in a slight degree, also furnish means by which a diagnosis may be made.

If pressure be made on the eye-ball a few hours after death, the cornea becomes opaque; and this occurs invariably. But if the least spark of life remain, that effect would not be produced. This may, therefore, be said to be a sign at once distinguishing the state of trance from that of death—one of ready application, and thus rendering wholly unnecessary the carrying out of the suggestion that inhumation should never be proceeded with until the body has shown unmistakable signs of decomposition.

Catalepsy is a disease which is often feigned, sometimes for the purpose of exciting the sympathies of the charitable, occasionally by soldiers to procure their discharge from the army, often by females in good circumstances, merely from a desire of creating an interest in their behalf, and by itinerating mesmeric impostors. To detect the imposition is oftentimes a matter of great difficulty, all the symptoms and signs of trance being exhibited with great truth. Such persons require to be carefully and vigilantly watched, and their character inquired into, when some inconsistencies will be noticed, and their imposition detected. Perhaps the inhalation of chloroform, where malingering is suspected, and is necessary to be known, would be of great service.

With regard to the treatment, Dr. Miller says the cold bath is injurious, but hot baths and pediluvia have been found useful. The most effective means, however, seems to be hot pediluvia and the cold douche applied to the head at the same time. The patient cannot swallow medicines; but if there should be any sensibility remaining, ammonia and other stimulants might be applied, held near the nostrils. Friction of the surface of the body with rubefacients might be useful. Stimulating enemata might also be of service by relieving the bowels, and acting as a stimulant to the cir-

enulation in the parts. It is during the interval between the attacks that therapeutic remedies are likely to be of any avail. The treatment may be summed up in a few words—the cause must be searched for and removed, if possible. If a hemorrhoidal hemorrhage has been suppressed, leeches must be applied round the anus. If there are worms in the intestines, anthelmintics must be given; or if it be caused by the retropulsion of an exanthematous eruption, everything must be done which can remove the irritation caused thereby.

Part xxi., p. 90.

CATARRH.

Lobelia Inflata.—Recommended in the catarrh of both children and adults, especially if inflammatory. Tincture or infusion of lobelia is much better than either ipecacuanha or emetic tartar; being at once a decisive and safe nauseant, and not irritating the bowels.

Part xvi., p. 134.

Catarrh, Chronic.—In old and weakly people, where there is much expectoration, and when there is no disease of the heart or great vessels, give tannin, one, two, or three grains, twice or thrice a day.

Part xxi., p. 326.

Treatment of Catarrh.—Dr. Lombard, of Geneva, suggests that catarrh should be treated as follows:

A piece of metal is heated in a spirit lamp, and a few grains of powdered opium having been sprinkled upon it, the patient is directed to hold his head in the fumes, and to make a few forced inhalations. It is said to afford most marvellous and speedy relief to the distressing pain and sense of weight so commonly felt in the frontal sinuses. As addressed to this particular symptom, the expedient might be advantageously combined with "orange-juice treatment," so useful in allaying the fever, restlessness and general disturbance which often attend this common and most disagreeable complaint.

Part xxxi., p. 86.

Catarrh.—*Vide* Selections from Favorite Prescriptions, Art. "Medicines."

Catarrh.—Let the patient drink freely of some warm fluid, put on a warm great coat, and walk smartly till he feels himself perspiring, then turn homeward, continuing his pace quite up to his own door, and let him have a bed to get into the moment he gets home; or let him use the hot air bath, which is one of the most convenient and manageable of all diaphoretic remedies: all that is wanted is a spirit or gas lamp, and a roomy cloak of some air-tight material, fastened close at the neck. If these means fail, or in conjunction with them, opium in the form of Dover's powder is, of all drugs, the best, let the patient take about ten grains: with many persons it acts as a specific. Lastly, stimulant diaphoretics, such as ammonia, ether, ammoniacal salts and camphor, especially the latter, often produce astonishing effects. A few drops of spirit of camphor may be taken on a piece of sugar, every four hours or so, or it may be given in the form of a draught, combined with salts of ammonia and potash.

Part xxxiv., p. 33.

Catarrh and its Treatment.—Dr. C. H. Jones gives the following:

A point which I think is not yet sufficiently understood is the almost invariable tendency to aggravation of catarrhal disorders during the night. I have observed this in catarrhs of various parts. It is commonly supposed to depend upon the accumulation of mucus, but I believe it is rather due to a lowering of the nerve-power during the night, and consequent obstruction of arteries, the vaso-motor nerves partaking in the general debility. From this cause the hyperæmia of the affected part becomes increased, more irritation is set up, and more exudation takes place. There are many acts of a like import. Asthmatic paroxysms are apt to come on in the hour or two of sleep. Those of pertussis are aggravated often at night. Fever patients are apt to sink during the night. Epileptic attacks, when the disease is yielding, often happen only at night. Malaria affects the system much more severely at night than by day. When I have had cachectic pustules on my fingers from dissecting, I have often observed that they suppurated afresh at night, after they had appeared to be healed during the day. In a communication made by Mr. Clarke to Dr. Graves, it is stated that the electricity of the atmosphere is at its daily minimum at three A.M., and that the atmospheric pressure has one of its two daily minima an hour later. All these facts, especially when regarded in connection with the manifest depressing influence which the catarrhal poison exerts on the nervous system at large, seem to me to give much probability to the opinion above expressed.

It seems to me very possible that various causes, operating after the manner of depressing poisons upon the nervous system, may give rise to the phenomena of catarrh. The pain and general depression of a severe catarrhal attack manifestly indicate the operation of a poison on the nervous system, and the pains are, in fact, actually so many neuralgia.

If we suppose the morbid influence of catarrh affecting the mucous surfaces, transferred to the vaso-motor nerves of the limbs and of the synovial membranes, we should certainly have results identical with those of rheumatism. The etymology, in fact, is correct, and *catarrh* is a *rheumatism* of the mucous surfaces. Another point, in which catarrh has an evident affinity to neuralgia and aguish disorder, is that instances are not unfrequent in which attacks of neuralgic character are accompanied by exudation. Such are asthmatic paroxysms, passing off with free expectoration; lachrymation and salivation occurring with neuralgia of the tritacil; gastralgia, with its watery flux (pyrosis); sudden attacks of abdominal pain and diarrhœa taking place in some cases of remittent fever, and also as an independent affection; and certain cases of violent paroxysms of sneezing. Here the nerve disorder is temporary, and with it the vascular congestion subsides, and the exudation ceases. If it were more persistent, the result would be catarrh.

Treatment.—The treatment of catarrh is sufficiently rational and satisfactory. In cases where the local disorders are wanting, or nearly so, and the general depression and prostration, without much pyrexia, are the prominent phenomena, I find carbonate of ammonia, five grains, in cascarrilla infusion, three or four times a day, of great service. In somewhat more pyrexial states, the ammonia is better given in equal parts of camphor mixture and liquor acetatis ammoniæ. Tincture of hyosciamus, or tincture of cannabis indica, or (if there be diarrhœa) Battley's solution, may be added to the foregoing. Camphor and henbane, or morphia, or

Dover's powder, may procure comfortable rest in many cases at night. As improvement goes on, citrate of iron and quinine, with tincture of nuxvomica, or quinine alone, may be substituted for the ammonia. If in any case there should be much pyrexia, citrate of potash, with bicarbonate of potash, and dilute hydrocyanic acid, guarded also, perhaps, with a little Battley's solution, will be very appropriate. In many cases, rest in a warm bed for a day or two, with wine negus as a gentle stimulant, and equalizer of the circulation, will alone do very much to restore the system from its depression. There is no need for any rigid diet, nor for any attempts at elimination of the catarrhal poison.

In all local catarrhal affections, the general indications are the same—viz., in the early period, to reduce sthenic inflammatory action (supposing it to exist), and, in the later, to give tone to weakened vessels and nerves, and to calm irritation. In catarrh of the *air-passages*, ipecacuanha, half a grain to a grain, combined in a pill with one or two grains of extract of conium, and a little morphia, if there be much nervous irritation, and given every one or two hours, so as to maintain a degree of nausea for some time, is very effectual in combating sthenic inflammation. The saline and alkaline mixture, with hydrocyanic acid, mentioned above, should also be taken every three or four hours. There seems to me a decided advantage from giving the pill and mixture separately, as the nauseating influence of the ipecacuanha can thereby be regulated more easily, without interfering with the saline. Very decided cases of bronchitis may be conveniently dealt with in this way; some, however, occurring in the more vigorous and robust, may require the more potent influence of antimony. Mustard poultices or turpentine stupes, and in the later periods blisters (if necessary), may all be of much service. In cases of tracheal catarrh, where the cough is very distressing and obstinate, small blisters, applied just at the top of the sternum, are often of much avail. If there be much constitutional depression, together with the local catarrh, the skin cold, and the pulse feeble, ammonia, with the compound spirit of sulphuric ether, in casearilla infusion, is very appropriate. Tincture of *cannabis indica* is a good sedative, which may be given with the above, or the extract in a pill at night; it certainly has a notable effect on the cough in not a few cases. In some cases of this character, there are symptoms of constriction of the air tubes (asthma), to meet which liquor of the arsenite of potass may be added with advantage to the ammonia mixture, or extract of stramonium be given in a pill two or three times a day, or at night only. When the catarrhal affection is clearly asthenic, the râles moist, the expectoration free, and the pulse weak, the greatest benefit will accrue from the use of nervine tonics, as nitric acid, strychnine, quinine. With these, sedatives may be also employed, as well as cod-liver oil, to aid in improving the various nutritive processes. It is not unfrequently a cause of some perplexity to determine, at the commencement of the treatment, whether a tonic or contra-stimulant plan is to be adopted. Sometimes, I believe, only the result of a trial will show. Senega, preceded by an emetic, is most appropriate to cases of obstructive bronchitis, or, as it has been termed, suffocative catarrh. I have seen it turn the balance in a grave and most perilous case, when all other means had failed. Dry cupping is a most useful aid in chronic bronchial catarrh; it is more cleanly and convenient than mustard poultices, and the patient's attendants can soon be taught to do it themselves, if the practitioner cannot spare the time. The

balsams and squill I regard as milder forms of nerve-toners, appropriate to cases where either the stronger tonics cause irritation of the tissue, or the morbid action remains at a grade intermediate between asthenic and asthenic inflammation. I cordially agree with Dr. Copland in his reprobation of the practice of maintaining a copious expectoration for an indefinite time, which the mere routine administration of these drugs is apt to keep up.

In *nasal* catarrh, when the flux is asthenic, though it may be most copious, I can answer for the good effects of bottled stout and strychnine, and the experience of others is to the same purpose. The *dry* plan of treatment (albeit I hold it in abhorrence) is by no means unscientific; it regards the need of diminishing the strain from within upon the weakened bloodvessels. I think it, however, better and pleasanter to try to tone them.

In *conjunctival* catarrh, even the most severe, the case is nearly the same as in nasal. We possess no contra-stimulant drug to be depended on for subduing the asthenic inflammation. We are, therefore, obliged to resort to direct means, as local blood-letting, and the application of nitrate of silver. The arrest of severe conjunctivitis by Mr. Guthrie's ten-grain ointment, or by the use of solid lunar caustic, is certainly a striking therapeutic effect, even if it cannot be relied on as a constant one. When the asthenic period has passed, nerve-tonics (quinine, etc.) have the best effects, as elsewhere.

In the treatment of *gastric* catarrh, I do not know that we have any contra-stimulant drug to be at all ranked with ipecacuan and antimony in their action upon the bronchial tubes. I think I have seen good from the administration of mercurials, as grey and Dover's powder, of each two grains and a half three times a day, for a few days; but I am not so clear about their good effects in gastric as in intestinal catarrh, where they are most marked. Leeches, followed by a continued poultice or fomentation to the epigastrium, will be of much benefit in the earlier periods, and a blister in the later. Lumps of ice, and a saline and alkaline mixture with hydrocyanic acid every two or three hours, will be very grateful as long as there is active inflammatory movement. When this has quite, or nearly, passed by, tannin, in pills, with muriatic acid either alone, or combined with dilute hydrocyanic acid, forms an excellent tonic, and this again may be followed by the stronger ones, as quinine or strychnine. Bismuth appears to me to find its opportunity in the intermediate grades of inflammation, or those which contain a good deal of the neuralgic element. It certainly arrests pain and muco-watery profluvia, and seems to act, in part, at least, as a nerve sedative. I have generally given it with soda or magnesia in mucilage, together with hydrocyanic acid. In many cases tannin may be given at the same time with bismuth, but I regard it as a grade nearer to the tonics. Nitrate of silver does not seem to me to belong properly to the remedies for gastric catarrh; it finds its exact opportunity in gastric hyperæsthesia. Lactic acid, or pepsin, with the meals, are of course to be recommended if there be any abiding debility of the stomach, and failure of digestive power after the above means have been fairly tried. Certain conditions of the stomach, by no means unfrequent at the present time, when there is pain and soreness, nausea, and rejection of muco-watery fluid, mingled sometimes with blood, and which are cured by quinine with opium, or citrate of iron and quinine with nux

vomica, form a transition stage between catarrhal and neuralgic affections. I strongly suspect that cases allied to these, where there has been a good deal of bleeding, are often wrongly set down as gastric ulcer. I have little doubt that, especially in conditions of anæmic disorder, when internal congestions are apt to occur, the mucous membrane of the stomach may bleed like that of the nose, without any ulceration.

The treatment of catarrh of the *small intestine* is very similar to that of the stomach, but salines are generally to be avoided. Repeated small doses of grey and Dover's powders are of very great benefit; and if the urine is turbid with lithates, carbonate of soda should be given in infusion of lemon or orange peel. As long as there is anything like tenderness, warm fomentations should be applied to the abdomen. In some cases, repeated small doses of castor oil seem to modify beneficially the irritable state of the mucous surface; they should be given with a few drops of tincture of opium. Bismuth and tannin may be of much value after the earlier stage has passed away, and in protracted cases nitric acid and liquor of per-nitrate of iron are found efficacious.

Catarrh of the *large intestine* is identical with the milder forms of dysentery. Its treatment is remarkably similar to that of bronchial catarrh. Ipecacuanha frequently administered is of great avail in subduing the sthenic inflammatory state in each, and the asthenic is benefited by very much the same tonics.

The *bladder* is one of those regions of the body which seem to be less under the control of remedies than many others. Except blood-letting and opium, there seems to be no remedy known which has any effect in subduing sthenic inflammation of its mucous lining. Copaiba has often great power in diminishing the secretion of mucus, and I have found benefit also from strychnia, in chronic cases, as a tonic to the relaxed vessels. But it is most difficult to arrest the morbid action completely, and, except in the young, where the vital powers are more elastic and capable of recovering themselves, I doubt whether it is to be done. The principles of action are, however, the same as in other catarrhal states.

In *uterine* catarrh there is rarely any opportunity for dealing with the state of sthenic inflammation, and the task of the practitioner is mainly to give tone again to the weakened, relaxed, and congested vessels. An occasional blister to the sacrum may be of much service, but reliance is chiefly to be placed on cold astringent injections effectually employed (vide Dr. Tyler Smith's directions, pp. 198-200 of his work), on the alum tampon, and on various astringents and nerve tonics administered internally. Dr. F. Churchill mentions ergot, tincture of muriate of iron, decoction of hæmatoxylum, and balsam copaiba, and to these may be added quinine and strychnia, which I have found of decided efficacy.

I have desired to maintain and illustrate the view that the treatment of catarrh is to be directed simply to meet and obviate the effects of a depressing, or irritating poison, without in any way endeavoring after its elimination.

Part xxxvi., p. 51.

CATHETERISM.

Improvement in Catheterism.—Mr. Spong proposes the following simple contrivance in those cases where from the rupture of a vessel in case of en-

larged prostate or of stricture near the neck of the bladder, the eye of the catheter becomes plugged with coagulated blood, and the urine is prevented from passing.

The coagulated blood may be either dislodged or prevented from entering the eye of the instrument. While the instrument is in the bladder, it may be dislodged by applying a common syringe to its orifice, and then pinching the point of junction of the two instruments between the finger and thumb. If the piston is now briskly drawn up, the clot of blood is sucked into the cylinder of the catheter, and the urine flows freely. A glass syringe, capable of holding a fluid ounce, is sufficiently powerful. This manoeuvre is applicable to either a silver or a gum-elastic catheter. The clot might be dislodged by injecting; but that process is out of the question, for the bladder is too full already.

Part xviii., p. 202.

Catheterism.—Never use gutta serena catheters. However carefully they are used, they are liable to break, simply from the mode of their construction.

Part xx., p. 164.

Catheters, Lubrication of.—Castor oil is the best: when cold, it is viscid and adheres well to the instrument, losing its viscosity just at the proper time, when it arrives at the stricture. Olive oil should never be used. If the urethra be very irritable, it ought first to be well lubricated by passing a large instrument down to the stricture, then withdraw it and pass a second, also well greased.

Part xxxii., p. 176.

Catheterism—Precaution.—When the bladder is greatly distended, do not draw off the whole of the urine at once, especially if in a debilitated person, for it has occasionally happened that a fatal syncope has occurred, or depression from which the patient has never rallied. After removing thirty or forty ounces, withdraw the remainder in the course of half an hour or an hour.

Part xl., p. 143.

Mode of Introducing the Catheter in difficult Cases.—Dr. Charles Paterson, of the Rathkeale Infirmary, has suggested and made use of a very ingenious method of passing the catheter in difficult cases; and especially in those in which the third lobe of the prostate gland is the obstructing body. He attaches a common bladder to one end of a common catheter, in the same way as we affix it to an enema pipe; having a bit of a cork and a string attached to it, just in the form of a common enema apparatus: the catheter is then passed down to the stricture, or as far down as the patient can bear; the fluid is then injected along the catheter, which should be as large as can be admitted, in order as much as possible to prevent the escape of the fluid at the sides. The bladder being filled with urine at the time, opposes a considerable resistance to the entrance of the fluid, and the urethra in consequence becomes distended, but the distention chiefly acts on the neck of the bladder and the parts nearest to that part, and, "from the circumstances of their connections, the distention principally takes place in the direction of the rectum, forcing the tumid middle lobe of the prostate backward and downward, and so diminishes the obliquity of the passage." It may be also that the bladder admits some of the liquid, and becoming still further distended in the way which Sir Everard Home describes to occur about the third day after the obstruction, its posterior part bulges backward, and draws the swollen lobe with it. The urethra thus acquires a more normal direction, the tumid lobe of the prostate becomes

altered, and the instrument generally now glides into the bladder with much more ease. A pig's bladder is found to answer perfectly well.

Part iii., p. 97.

CAUSTICS.

Practical Remarks on Caustics.—Sir B. Brodie observes as follows: Some caustics act very slowly upon the part to which they are applied, while others cause the part to slough rapidly; some are productive of great pain, which last for a longer or shorter time; others again destroy the parts to a great extent; the effects produced by others are local. In some cases, granulations rise above the surface and prevent new skin forming over them; it is important that they should be destroyed. For this purpose you should use nitrate of silver; this causes the destruction of some and the absorption of others. There are some cases where there exists a great number of fungous growths, and it is necessary to get rid of these. You will find this ointment useful: *Ærugo æris, cupri sulph., hydrargyri nitricoxidi, aa. ʒij.; Hydrarg. perchloridi, ʒj. Adeps q. s. ut fiat unguentum.* This may be spread upon lint, and applied to loose fungous growths. One mode of making issues is by applying caustics. You should use for this purpose caustic potass until it has just penetrated through the skin. If you rub on this caustic often, you get considerable bleeding; caustic potass too frequently continues to spread after its application. The concentrated nitric acid does not spread so much as caustic potass. I have seen nitrate of silver pounded and rubbed up with lard, applied to make an issue; its action, however, is slow, and causes much pain. Other caustics produce much less pain, and accomplish the object more rapidly than this. When an issue, or wound, or sinus is open, and you wish to keep it so, lest the orifice heal, and matter should form and produce abscess, you should touch the margin with caustic potass, which causes a slough, and this is a long time coming away. I have seen lunar caustic applied in these cases gently give pain, and cause even cicatrization of the orifice. You will frequently have to apply caustic, when it is material to use it well, as in the case of a bite from a mad dog; whether he be mad or only supposed to be so, the treatment is the same; it is better to excise the part where this can be easily accomplished, but in the bite of the palm of the hand it would be a serious thing to cut out tendons, vessels, nerves, etc.; or it may be that when you think you have cut out all, you cannot follow the wound, you will find it necessary to cauterize it. The best caustic on these occasions is the caustic potass, because it dissolves and penetrates through to where the saliva may have penetrated. The best mode of applying it is to melt the potass in a silver or platinum cup, and dip into it a blunt probe; you thus get a layer of potass upon the end; by carrying the probe thus armed into the wound as far as the dog's tooth has penetrated, you may be sure of the caustic penetrating further. You may use caustics to destroy diseased lymphatic glands. A man has an inflamed gland, which suppurates, and the wound will not heal, because at the bottom of it there is a diseased gland; and no ulcer will heal without a healthy basis. You may destroy these by nitric acid or lunar caustic, but the potass destroys them entirely.

This was used by Mr. Pearson: an ounce of crumb of bread, perlb. of mercury, 3j., red lead, 3j.; this mixed and kneaded with the finger should be rolled into conical troches, and these you may stick into the gland; they soon act, and continue acting until the whole gland is destroyed. If the application of the first troches be not sufficient, more may be inserted afterward. I do not know whether the red lead does much good in this prescription, but I have employed this remedy as I found it. Warts on the penis or pudenda may be easily destroyed; sometimes where a great mass exists on the penis or pudenda, the lunar caustic is too weak; you should then use nitric acid till the whole is destroyed. The following will answer well: a drachm of nitric acid to two drachms of the muriated tincture of iron. A useful escharotic for warts on the penis or pudenda is powdered saffron and cerugo artis sprinkled upon them, which causes sloughing. Another is this: nitric acid ʒss., white oxide of arsenic 3j., which has the double action of arsenic and nitric acid. To destroy fungous granulations such as are frequently generated over an old carious surface of bone, the following ointment is advised: The ointment consists of verdigris, sulphur of copper, nitric oxide of mercury, of each two drachms, oxyanhydride of mercury one drachm, with as much hog's lard as is necessary to blend the together. This may be spread on lint, and one or two applications will be sufficient to destroy a very large mass of fungous granulations.

Part iii., p. 71

The Preparation of Fine Points of Caustic for Ophthalmic and other purposes.—Dr. Hunter states that on being called on to stop several hemorrhages on the scrotum, and finding the sharp point of his caustic to be soon blunted, he tried the following method. He says:

I wrapt the nitrate in a bit of paper, crushed it with my heel, and placing some of the fragments on a silver half-franc piece, I held it over the flame of a candle, and then dipt the triangular-pointed flat end of a silver probe, previously roughened on a stone, in the melted salt, which adhered, and on cooling, formed a fine coating. This being inserted quite into one or two of the bites, they immediately ceased to bleed; to get another point of caustic on the probe, was the work of an instant, and in this way, a most alarming hemorrhage (the patient being almost in articulo) was speedily arrested.

Since the above incident, I have been in the frequent habit of employing the same method to get a fine point of lunar caustic for various ophthalmic purposes, such as touching small sloughy ulcers of the cornea penetrating to the membrane of the aqueous humor, and in many other cases. I have also in this way got a fine coating of the nitrate on a probe, to be passed into the nasal duct in some cases of fistula lachrymalis; and I conceive it might be found useful in many cases in general surgery, such as sinuses, affections of the nose, ear, etc., where caustic would often be introduced, but for the fear of serious consequences from the breaking of a common stick of it in such situations. The plan just recommended answers equally well for caustic potass, when a fine point or globule of it is required, as for producing eversion of a misplaced eyelash, or for destroying the remains of cysted tumors in the eyelids, or other purposes. The potass may be applied to the roughened surface of any common metal; but for the nitrate of silver, the probes must be of silver or gold, else the salt is rapidly decomposed, and the probe destroyed. A fine point of tartar

emetic, sulphate of copper, and similar salts, may be got by chipping their crystals, and then fixing the fragment on the end of the probe with sealing-wax; but another plan, and the only one, when a long bristle, as it were, of these substances is required, is to take a wire, or the point of an old lancet, and heating it, and giving it a very thin coat of sealing-wax, to push it whilst hot amongst the powdered salt. In this way a probe, which is to be introduced into a sinus, or into the nasal duct, may be coated with sulphate of copper or any other metallic salt; and this is the method I employ to prepare the flat points of tartrate of antimony for inoculating the bulbs of inverted eye-lashes, using for the purpose a bit of platinum foil shaped like a lancet.

Part iii., p. 92.

Caustic Vienna Paste is made with five parts of lime and six of pure potash, mixed together with alcohol.

Part ix., p. 186.

Caustic Paste of Sulphate of Copper.—M. Payan, senior surgeon to the Hotel-Dieu, of Aix, speaks favorably of a new caustic paste, made of sulphate of copper. A sufficient quantity of the sulphate, reduced to powder, is mixed up with the yolk of an egg, so as to form a soft paste of a deep green color. It is applied on a piece of lint, and when removed, does not leave behind it the loss of substance or unsightly scars, which commonly follow the use of other escharotics. Its use is suggested in certain cases of lupus.

Part vii., p. 168.

Black Caustic.—M. Velpeau prefers the black caustic to any other. He says:

The black caustic, composed of sulphuric acid and saffron incorporated together so as to form a homogeneous paste, appears to me to have an incontestable superiority over all the others. It destroys the whole of the surface with which it comes in contact; occasions no sanguineous oozing even where the skin is ulcerated and fungous; causes but little pain; the tissues attacked dry up, and suppuration commences with the eliminating inflammation. It is true its application is rather difficult, owing to its adhering more to the spatula than to the tissues.

As it burns everything, diachylon plaster cannot circumscribe it, and can only be conveniently applied on a horizontal surface; in other situations, it would in all probability run. Still these faults, which I am far from wishing to conceal, by no means counterbalance its good qualities. Indeed, I believe the black caustic is better than any other.

Part xvi., p. 294.

Solidified Nitric Acid.—For the purpose of cauterizing cancerous tumors, etc., use a preparation made by gradually dropping a certain quantity of highly concentrated nitric acid upon lint, until a gelatinous paste is formed. A portion of this paste is to be applied upon the part until an eschar is formed.

Part xxi., p. 24.

Potassa cum Calce.—For cauterizing the uterus, employ cylinders of potassa cum calce, made with two parts of potassa to one of lime, fused together and run into iron molds. While this preparation is quite as powerful as pure potassa, it may be used with much greater ease and safety, as it does not deliquesce like the latter.

Part xxi., p. 293.

Chloride of Zinc.—To prevent this caustic from running, mix it with plaster of Paris, in proportions to suit the case in hand.

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Potassa Fusa.—To prevent this from deliquescing, mix two parts with one part of lime. Cylinders of this may be made nearly as managed in nitrate of silver.

Part xxix., p. 28.

Nitric Acid and Sulphur as an Escharotic.—The combination of nitric acid and sulphur, is much superior to nitric acid alone; it gives less pain, acts longer, and produces more eschar. The strongest nitric acid must be mixed with sublimed sulphur until of a sufficient consistence to form a paste. When applied, it does not run like the chloride of zinc, etc.; but it will be best to protect the surrounding parts by plaster.

Part xxxii., p. 19.

Sulphate of Zinc.—This is one of our most powerful and manageable caustics. It may be employed in the form of a simple powder, dried anhydrous, and finely levigated, or in the form of a paste made with glycerine, in the proportion of one drachm of glycerine to an ounce of the dried sulphate of zinc—in this form, it will keep for any length of time ready for use; or an ointment may be formed by pounding together 50 drachms of axunge with an ounce of the dried sulphate of zinc. When applied in any of these forms to an open or ulcerated surface, the part to which it is applied is rapidly destroyed, and the slough usually separates on the fifth or sixth day; if any yellow or unhealthy tissue remains behind, it will require to be repeated immediately, until the whole morbid tissue is removed, and a red, granulating, healthy wound remains, which will rapidly heal under any common application. Sulphate of zinc, like chloride of zinc, will not act as a caustic when the epithelium is entire, so that when we wish to apply it to a non-ulcerated structure, we must first remove the epithelium by a blister or a paste made with sulphuric acid and the sulphate of zinc: this will at the same time remove the epidermis, and give the action of the mineral caustic. If this be too liquid, it may be prevented from spreading by inclosing the spot within a circle of oxide of zinc powder. The local suffering which it produces, generally disappears more rapidly than that produced by arsenic or the chloride of zinc, and it may always be relieved by the temporary use of anaesthetics or opiates. The eschar from the sulphate of zinc separates sooner than after most other caustics. The eschar made by arsenious acid seldom separates before the sixteenth day, that made by the chloride of zinc usually separates by the tenth day, while that made by the sulphate of zinc separates as early as the fifth or sixth day. But besides the application of the sulphate of zinc to malignant growths, it may be used in many other cases where caustics are usually resorted to, and with equal success. The first of these which we will mention, is the indurated inflammatory ulcer of the cervix uteri: here it should be applied through a speculum, or in the form of a medicated pessary, made up with axunge or glycerine. It may also be used in cases of lupus (alternating with other caustics) in the annoying and intractable ulcerous forms of impetigo rodens, in eating down the small, red, sensitive tumors so common at the orifice of the female urethra, and also in destroying ulcerated condylomata.

Part xxxv., p. 26.

Pernanganate of Potash.—This substance in solution possesses the property of removing all noxious and fetid odors, and in the solid form it possesses caustic properties. It may be used as a lotion, twenty grains to the pint, to ulcerated cancerous tumors, when it removes the fetid odor

and causes the place to assume a much more healthy character. In the solid form, it may be used to destroy cancerous masses. If a little of it, mixed with water, and spread over a plate, be placed in a sick chamber, all offensive odor will disappear. *Part xxxvi., p. 261.*

Sulphuric Acid and Sulphate of Zinc as a Caustic.—The ordinary sulphate of zinc is to be dried in an oven or sand-bath, so that the water of crystallization is driven off, and a whitish powder remains. Enough of this is to be added to some strong sulphuric acid, in order to make a semi-fluid mass of consistence sufficient to prevent its running beyond the spot on which it is placed. The mixture should be kept in a stoppered bottle, and be applied with a small glass spatula or rod. Before using it, the surrounding parts should be protected by a thick layer of cerate or firm ointment, so as to form an embankment limiting the surface to be destroyed, and a layer of the caustic may be made upon this of about the eighth or tenth of an inch in thickness. This is allowed to remain. *Part xxxvii., p. 265.*

CHAPS AND FISSURES.

Pomade for Chaps and Fissures of the Toes.—One of the most annoying effects of secondary syphilis is the formation of fissures on the internal surface of the toes; they are usually very painful, are surrounded with a red areola, and secrete a syphilitic matter. In a few cases, gangrene has been known to supervene, and destroy one toe after another. An ointment, containing litharge, white precipitate, and a few drops of laudanum, has been used with very marked success in such cases, in many of the hospitals of Germany. It is also much recommended in the serpiginous and phagœdænic ulcers, which occasionally supervene upon vaccination in children of a scrofulous or syphilitic constitution. The process of cicatrization is often promoted by bathing the sores, at the same time, with a decoction of hemlock and marsh mallows. *Part ix., p. 192.*

Excoriations about the Anus and Scrotum.—For the itching excoriations about the anus and scrotum, which sometimes affect old men, Mr. Drutt has used a solution of pure tannin with benefit, as a local application, but prefers lemon-juice. *Part x., p. 139.*

Chapped Hands, Face or Nipples.—Apply a wash with glycerine and sixteen times the quantity of rose water, with a few grains of borax. *Part xvi., p. 226.*

Use of Collodion.—Recommended by Mr. Erasmus Wilson as a local application for chaps, fissures, and various affections of the skin. *Part xviii., p. 227.*

Anal Fissures.—The favorite ointment of St. Mark's, for small fissures, irritation, etc., about the anus, consists of five grains of calomel to one drachm of elder-flower ointment. The ointment so warmly recommended by Copeland is made of the black oxide of mercury. *Part xxxv., p. 115.*

Chaps and Excoriations.—An excellent application is a mixture of glycerine and tannin, equal parts by weight. The tannin readily dissolves in the glycerine. *Part xxxvii., p. 239.*

Fissure of the Anus.—It is unnecessary to divide the entire sphincter, as several examples have lately occurred which have been effectually cured by the division of a few of the muscular fibres of the sphincter at the situation of the fissure.

Part xl., p. 112.

CHARCOAL.

Charcoal.—This body should be perfectly dry before being used. If moist or wet, place it before the fire, and gradually dry it. By doing so it may be used over and over again. Charcoal has a most surprising power of *rapidly absorbing sloughs*. It hastens decomposition. In infectious diseases, bolsters and mattresses may be made of it. It completely destroys smells of all kinds even when placed near their source.

Part xxxi., p. 255.

Charcoal as a Disinfectant.—As the most powerful disinfectant, it may be used in various ways. It should be perfectly dry. Heat it thoroughly in a covered crucible, with a small hole in its lid to allow any oxidized material which it may contain to escape, taking care not to have the hole sufficiently large to allow the charcoal to undergo combustion. When thoroughly heated allow it to cool. Next place it in shallow vessels where wanted to deodorize or disinfect. It will lose its power in a few days, and ought then to be heated again in the same way.

Part xxxi., p. 255.

Medicinal Properties of Charcoal.—As charcoal is not chemically affected by either acids or alkalies, and is quite insoluble, its admixture with other substances is not incompatible, so that it may be combined with any other kind of medicine, *ad libitum*.

It is a powerful absorbent of fluids, whether aqueous or nêriform; and as it undergoes no change in the human stomach, it may with great truth be described as the only pure absorbent we possess, for the same cannot be said of either lime, magnesia, bismuth, or any other mineral absorbent, all of which form salts with the acids they meet with, sometimes to the complete subversion of all their original properties, while the vegetable or farinaceous absorbents, such as flour, starch, gum, etc., are changed by digestion, giving off frequently offensive gaseous emanations as the results of mal-assimilation.

Pure charcoal is very useful in acute disorders of the mucous surfaces of the alimentary canal, and also of those of the uterine passages, and particularly in those instances where the secretions are inordinate in quantity, or offensive in condition.

It may, perhaps, induce a more extended trial of charcoal powders if a few instances were named in which the remedy has proved eminently serviceable. In the exquisitely-painful small ulcers within the mouth, on the inner surface of the lips or cheek, which, at irregular intervals, pressid to some extent, and are extremely troublesome, the following wash will be found an excellent remedy:

R Pulv. carb. ligni pur. ʒij.; mel. rosæ ʒj.; decoct. cydoniæ ʒiij.; aq. dest. ʒiv. M. Ft. lotio sæpe adhibenda.

The lotion is also useful in excessive pyalism; it speedily moderates the discharge, and instantly corrects its fetor, and its application is extremely soothing and agreeable. The same may be said of it when used as a gargle in ulcerated sore throat, the sloughs separating rapidly and easily, leaving a healthy surface underneath.

In the earlier stages of diarrhœa, a mixture composed somewhat as follows speedily gives relief:

℞ Pulv. carb. ligni pur. ʒj. ad ʒiv.; mucil. acaciæ ʒij.; syr. aurantii, tr. cardam. co. aa. ʒiv.; aq. dest. ʒijj. M. Sumat 4 drachmas 3tiâ vel 4ti q. q. horâ.

In the bowel affections of children, accompanied with worms, powdered charcoal in doses of 10 to 15 grains, with one grain of ipecacuanha powder, and from 3 to 5 grains of rhubarb, taken at bed-time, acts like a charm, correcting disordered secretions with certainty and comfort, and promoting a healthy tone and action. In gastralgia and gastrodynia, charcoal powder, in doses of 30 or 40 grains, three times a day, in water, seldom fails to give relief; and, in cases of severe tenesmus, accompanied by bloody or mucous stools, an injection into the lower bowel of one drachm of charcoal powder in a small quantity of thin arrow-root or gruel has been found to give almost instant relief.

Part xxxiii., p. 120.

CHILBLAINS.

Nitrate of Silver.—In cases of chilblains in which the tincture of camphor has failed to effect a cure, recommended to use a solution of nitrate of silver. The strength being varied from 10 grains to the ounce of water, to a saturated solution, according to effects.

Part v., p. 44.

Treatment of Chilblains.—According to Professor S. Cooper, exposure of a part to intense cold while in a state of perspiration is more likely to be followed by chilblains than its exposure to the same degree of cold when it is simply warm. Of itself cold cannot produce true chilblains.

The treatment is pretty well understood, and generally agreed on. If you have them in the first and second degree of severity, you are to use friction, and rub well with camphor liniment, or the soap liniment, to every five parts of which you may add one part of the tincture of cantharides; the liquor plumbi diacetatis, or a mixture of two parts of sp. vini camph. and one part of liquor plumbi diacet. Abroad, they immerse the parts in ice-cold water two or three times a day, rub them dry and cover them with a leathern sock; but this method is not universally applicable, and must not be used with patients disposed to phthisis or gout, nor with delicate females. I have already observed that the inflammation which accompanies chilblains is rather languid, and, as they have not much power of reparation, they therefore require stimulants. Ulcerated chilblains should have stimulating dressings, as a solution of the nitrate of silver, Peruvian balsam, a mixture of liquor plumbi acetat. and liquor calcis, or a lotion of chloride of lime, which is recommended by Lisfranc; this may be applied by means of lint. Some practitioners are very partial to a poultice in the first instance, made of oatmeal with some port wine, and they think it is of

great benefit. The treatment of chilblains in a state of mortification is conducted upon the same principles as in other instances of gangrene.

Part xvii., p. 197.

Treatment of Chilblains.—In the earliest stage, friction, either employed dry or with brandy or sp. camphor, is the simplest and best means; but when the parts have become red, swollen, shining, and even covered with phlyctenæ, but prior to ulceration, the formula recommended by M. Goffin may be used with the greatest advantage: camphor, 4 parts; ess. oil turpentine, 30 parts. When the practitioner is only consulted after ulceration has for some time taken place, M. Devergier's ointment is then the best application: lard, 1 oz.; liq. plumb. subac., 12 drops; thebaic extract, 3 grains; creosote, 10 drops.

Part xx., p. 171.

Use of Tincture of Capsicum for Chilblains.—Rub the part well with a sponge or piece of flannel saturated with concentrated tincture of capsicum (capsic. bacc. $\mathfrak{z}\text{iv}$.; sp. vin. rect. $\mathfrak{z}\text{xij}$.) until a strong tingling feeling is produced. Repeat the application daily.

Part xxi., p. 263.

Balms for Chilblains, Broken.—Use the "Baume Chiron de Lausanne," which is made as follows: olive oil, 10 oz.; Venice turpentine, 2 oz.; yellow wax, 1 oz.; boil together, strain, and add balsam of Peru 2½ drachms; camphor, 9½ gr.; stir constantly until cold.

Unbroken.—Rub unbroken chilblains with the following balm night and morning: Rectified sp. turpentine 1 drachm, sulphuric acid 15 grains, olive oil 2½ drachms; mix.

Part xxvii., p. 161.

Employment of Tannin and Tannic Acid.—Dr. Berthold draws attention to the great efficacy of a very simple mode of treating *chilblains*, and preventing their relapse. Twelve drachms of bruised galls are boiled for a quarter of an hour in half a pint of water, and strained. The fluid is applied to the parts two or three times daily for a quarter of an hour. The itching and burning diminish in two or three days, and ulcers heal in about a week. The same effect results from an infusion of oak bark, made with lb.j. of water lb.j. of bark, and standing twenty-four hours. The solution of half an ounce of tannic acid in half a pound of water may also be used. For preventing the occurrence of relapse, any of these may be employed once a day, or if the chilblains are not broken, tincture of galls may be used.

Part xxxii., p. 286.

Chilblains and Chaps.—Protect the parts from the air by an application composed of 30 parts of collodion, 12 parts of Venice turpentine, and 6 parts of castor oil.

Part xxxv., p. 170.

Ulcerated Chilblains.—Use chlorate of potash lotion. *Vide Art.* "Sore."

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CHLOROFORM.

Use of Chloroform and Ether.—Employ an inhaler; and do not let complete insensibility be produced in less than two or three minutes.

Let the vapor be largely diluted with air for the first few inhalations;

and do not continue the inhalation one instant after the pupils, previously contracted, have begun to dilate, remembering the cumulative property which the vapor possesses. In neuralgia it is unnecessary to produce unconsciousness, if the pain previously disappears; in cholera, delirium tremens, etc., the state of sopor should be produced; while in hernia, dislocations, or tetanus, where complete muscular relaxation is desired, the inhalation must be continued till coma supervenes, but then discontinued as soon as the necessary effect is secured.

Do not apply the handkerchief quite close to the face; and remember, that as soon as slowness of respiration or a degree of snoring is produced, it is only necessary to continue the inhalation at intervals, so as to keep up the sopor. In midwifery, a profound state of insensibility is not needed, except when we wish to turn, etc. The best way is to give a large dose at first, so as to get the woman fully under its influence, and then by withdrawing the handkerchief, diminish the sopor, till the head is passing the vulva, when a deeper anæsthesia is required.

Do not exhibit chloroform when there is any disease of the heart, aneurism of the great vessels, threatening dyspnoea, or tendency to engorgement of the lungs.

Do not give chloroform in a state of extreme shock.

When alarming symptoms arise from the use of chloroform, remove the handkerchief, or inhaler, and admit air freely to the face; do nothing else, except sprinkling cold water on the face, or otherwise trying to excite inspiratory acts; above all, do not try to make the patient swallow anything when in a state of insensibility. If further means are required, resort to artificial respiration.

If respiration becomes suspended from the use of chloroform, we must establish artificial respiration, and, in some cases, abstract two or three ounces of blood from the jugular.

ETHER.—Ether is much preferable to chloroform for producing anæsthesia in children.

Ether is more suitable than chloroform, in persons whose powers are much depressed, and in those cases in which we desire to prolong the insensibility for some time, or in which we wish to obtain muscular relaxation.

In extreme exhaustion from hemorrhage, ether is more applicable than chloroform.

Part xvii., p. 305.

Chloroform—Use of, in Midwifery.—Do not give chloroform in natural labor, except in cases where the pain is unusually severe, or where a severe nervous pain is superadded to the ordinary pain of labor. And do not give it indiscriminately, even in obstetric operation: thus in cases of retained placenta from inertia, the uterus would be more likely to contract upon the introduction of the hand, if the patient were not under the influence of chloroform.

Begin the administration of chloroform toward the end of the first stage of labor, when the os uteri is well dilated; except the pains are very severe, when it may be given earlier. Do not give such large doses as in surgical practice, except when operative proceedings are to be resorted to; in which case the anæsthetic state should be as deep as in surgical operations.

Do not give chloroform in natural labor, except when there is severe pain. Always, if possible, use an apparatus for its administration. Give a smaller dose than is given during surgical operations, except when it is wished to stop uterine action in order to turn the child.

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The use of chloroform relieves rigidity of the os uteri

Part xix., p. 335.

Use of Chloroform in Midwifery.—Chloroform should be given in all turning, forceps and crotchet cases, but especially the first. When there is no organic disease present, there is little danger to be apprehended from giving it in any case of labor, especially when it is remembered that immunity from pain may be secured without giving the chloroform to such a degree as to take away reason or consciousness.

Part xx., p. 335.

Chloroform.—A good sign of the production of insensibility is a kind of trismus which affects the elevator muscles of the jaw, so that the teeth are pretty firmly pressed together.

Part xxi., p. 364.

Chloroform Ointment.—Some forms of neuralgia resist almost all the means used to subdue them, and anæsthetic agents may naturally be expected to be beneficial in such cases, both internally and externally. The "Journal de Pharmacie" gives the following formula for a chloroform ointment: chloroform, sixty drops; hog's lard, one ounce. Mix in a mortar, and use two or three frictions a day upon the painful spot. As this ointment turns yellow when exposed to the light, it should be placed in a colored, wide-necked and well-stoppered bottle.

Part xxii., p. 35.

Chloroform.—Never administer it to a patient with a full stomach. Take particular care the vapor is diluted with plenty of atmospheric air, and never proceed to stertorous respiration if it can be avoided. Operate as soon as the patient becomes insensible to sound, or the pupils dilate. Death from chloroform takes place in consequence of the density of the air mixed with the heavy vapor of the chloroform being nearly equal to, or greater than that of the carbonic acid to be expelled from the blood. The nearer the two densities correspond, the less carbonic acid escapes from the blood, and the function of respiration no longer goes on. The specific gravity of carbonic acid is 1.523; the specific gravity of atmospheric air at 60°, saturated with the vapor of chloroform, is 1.355, and is, therefore, perfectly respirable: but if we increase the temperature of the air to 70°, it will take a much larger quantity of the vapor, by which the specific gravity will be increased to 1.533. If this is neglected, danger will ensue. In restoring a patient from the influence of chloroform, galvanism is the only chance. A current of electricity must be kept up through the fifth nerve, medulla oblongata, phrenic nerves and diaphragm, as long as respiratory movements can be produced, and let the patient have plenty of fresh air or oxygen gas, and the case must do well, for the blood will remain fluid for a long time, and circulation will go on as long as respiration can be carried on artificially.

Part xxv., p. 319.

Chloroform.—Test for.—When a few drops are rubbed between the palms of the hands, a fragrant odor is emitted, in no way pungent. If there is any pungent odor present, we may suspect its impurity.

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Topical use of Chloroform.—To obviate the volatile character of chloroform when employed topically, Dr. Rauch combines it with olive oil and some liquor ammoniac, forming an emulsive liniment. This is less expensive, relieves sooner, and is not so volatile as chloroform. The ingredients were at first employed in equal parts; but were afterward used in other proportions, according as to whether a counter-irritant effect (when more ammonia and chloroform must be added) were desired or not. It is applied on a wollen cloth, so folded that the inner layer is saturated by the liniment, and the outer kept dry, so as to prevent evaporation. When first applied, it feels cool, then smart and burns for ten minutes so as hardly to be borne; and then an agreeable coolness, with relief of pain, succeeds. When it causes too much irritation or vesication, it should be removed, or applied to another locality. The skin is made red by it, and often vesicated; and if a mere rubefacient is required, it should be applied by friction, or the cloth should remain on only for a short time. When a speedy vesicant effect is required, it is more useful than a sinapism or blister, and is easier of application, especially in children, who often fall asleep during its application. Dr. Rauch found it of great use, combined with other means, in cholera; and in relieving the painful affections of the abdomen in children, it is preferable to any anodyne. In the case of superficial burns, a compound of equal parts of chloroform, olive oil and lime water, has been found highly useful.

Part xxv., p. 328.

Resuscitation from.—In a case of great danger from the inhalation of chloroform, after all other remedies had failed, galvanic shocks were passed over the chest and top of the spine, at the origin and insertion of the phrenic nerves, and continued during two or three minutes. This produced the happiest results. The tendency to relapse into insensibility after the use of galvanism, was prevented by dashing cold water occasionally in the face, together with the internal administration of the same fluid.

Part xxvi., p. 164.

Local application of.—When applied to any painful part, the phial containing it should be inverted upon a handkerchief, so as to wet a spot upon its centre. Having done this two or three times, it should be applied to the seat of pain, with moderate pressure, and without friction. Some redness and tingling in the parts are produced, but these soon disappear when the handkerchief is removed. To prevent evaporation or inspiration of the chloroform, the cloth should always be covered with another dry one.

Part xxvi., p. 322.

Mode of Administering.—Mr. Le Gros Clark, assuming that sensation and volition are simultaneously suspended, gives his patient to understand, that when he ceases (after being commanded to do so) to make some voluntary effort, such as squeezing the hand of an assistant or raising his hand, the operation will be commenced. This, he thinks, is the best plan of affording a sure and simple criterion of what is a sufficient dose of the anæsthetic.

Part xxvi., p. 324.

Asphyxia from Chloroform.—In using artificial respiration in asphyxia from chloroform, it is very important to notice that the tongue should be drawn forward to insure the free entrance of air to the lungs, as when the patient is laid on his back, the tongue is particularly liable to fall back and close the orifice of the glottis.

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Artificial respiration, as recommended by M. Ricord, in cases where the fatal effects of this drug are manifesting themselves, cannot be too strongly insisted upon; but it must be well done, and steadily persevered in. In a case mentioned by Mr. Lowe, full eight minutes elapsed before the success of the treatment was made certain. *Part xxviii., p. 315.*

Chloroform—Artificial Respiration after the use of.—In cases of poisoning by chloroform, before having recourse to artificial respiration, *draw forward the tongue*. As soon as breathing ceases in these cases, the tongue falls back and closes the orifice of the glottis. Pull the tongue well out of the mouth, and pass a hook through the tip, so as to command it while artificial respiration is carried on. *Part xxx., p. 301.*

Chloroform.—This may be given in various diseases, and in larger doses than has generally been done. For example: *In painter's colic*, give half a drachm every two or three hours; increase this to a drachm, if necessary. *In delirium tremens*, give at first one drachm, increased to two drachms. Combined with opium, it may prove still more valuable, but don't give it by *inhalation*. You may give large doses by the stomach, but not by inhalation, in these cases. *In neuralgia*, a liniment composed of equal parts of chloroform and olive oil will act most beneficially. *Part xxxi., p. 290.*

Exhibition of Chloroform.—Don't be guided by the circulation, but by the *respiration*, in your exhibition of this remedy. Take a folded towel or handkerchief, presenting a pretty large surface, instead of a small bit of lint, or any other apparatus held to the nose, and don't stint the quantity, but get the patient under its influence as rapidly as you can. The moment the breathing is stertorous, cease the administration. Attend also carefully to the *tongue*, open the mouth if the respiration is difficult, seize the tip of the tongue with the artery forceps, and *pull it well forward*. Always give chloroform in the horizontal posture. *Part xxxi., p. 292.*

Formula for the Internal Use of Chloroform.—M. Danneey, pharmacien, at Bordeaux, recommends the following formula:

Pure chloroform, half a drachm; oil of sweet almonds, two drachms; gum arabic, one drachm; syrup of orange flowers, one ounce; distilled water, two ounces; mix the chloroform with the oil, and make an ordinary oily draught. The author also gives a very ready mode of testing the purity of chloroform. Mix the latter with some oil; if the chloroform be quite pure, the limpidity of the oil will not be destroyed; whereas, any chemical impurity, however small, will give rise to a cloud. *Part xxxii., p. 294.*

Simple Method of Preventing Accidents from Chloroform.—As a simple method of preventing accidents, it is recommended to give a glass of spirits previous to the administration of chloroform, to keep up the action of the heart and prevent sickness or sinking. In case an overdose should be given, an injection of brandy and water into the rectum will be valuable. *Part xxxv., p. 287.*

Anti-Hemorrhagic Action of Chloroform during Operations.—The diminution of hemorrhage which it produces during operations, renders it of real service in cases where a great number of vessels are opened. In all cases in which chloroform has been given, it is advisable not to apply

the dressings until some time after the operation, as the chances of hemorrhage when reaction takes place are much greater.

Part xxxv., p. 288.

Chloroform—State of the Pulse.—The finger of the practitioner should be kept constantly on the pulse from the moment when inhalation begins, and from this alone can the amount and duration of anaesthesia be regulated with perfect safety to the patient. Should spasm or rigidity of the muscles prevent the pulse being distinctly felt, the inhalation must be instantly stopped, until the spasm subside. Should the pulse become irregular or intermitting, which, however, is very rare, inhalation should be suspended. The volume of the pulse is no value as a guide; unless the pulse falls very much in quickness its volume is seldom much affected. The velocity of the pulse is lessened by chloroform, especially if long continued and in large quantities. Double caution is necessary where much blood is lost during an operation: here also the pulse is the sole and unerring guide.

Part xxxvi., p. 297.

Ether and Chloroform Gelatinized.—Professor Rusponi has succeeded in turning ether and chloroform into gelatine, by shaking them with white of egg in a closed receiver. The compound obtained with the ether is semi-transparent; with the chloroform it is white and opaque. This gelatine is soluble in water, and may be spread on linen in the form of a poultice. It will likewise mix with morphine, cantharadine, conicine, etc., and may thus become of great therapeutical use.

Part xxxvi., p. 299.

Chloroform as a Narcotic.—Chloroform has lately been much employed to procure sleep in those cases where opium is contra-indicated or fails to act. It is administered in doses of thirty or forty minims, suspended in a little acacia mixture, or some other mucilaginous fluid; and, given at night, generally succeeds in procuring for the patient two or three hours of tranquil sleep. In this way it has been used very successfully in cases of old bronchitis attended with profuse secretion; and in hemicrania, or other painful nervous affections, where opiates have lost all power of alleviating the patient's misery, the use of chloroform internally, in the doses above mentioned, has been attended with great and immediate relief, which allows the patient to obtain that repose of which he stands so much in need.

* * * * *

Cautions in the Administration of Chloroform.—If the operation is a very slight one, the minimum amount of anaesthesia necessary ought to be the practitioner's study. If the operation will probably occupy some time, give the chloroform more slowly, but more thoroughly, that its effects may be more lasting. Although, as it is well known, chloroform should never be given on a full stomach, yet, if given after a prolonged fast, as of six or eight hours, alarming symptoms may supervene, from the exhausted state of the system. The use of Dr. Snow's inhaler is preferable to that of only a sponge or a handkerchief, as the poisonous vapor is introduced less rapidly, and is mixed with air much more uniformly and certainly. The only fatal case which has occurred to the author was one in which there was a weak, flabby heart.

Part xxxviii., p. 254.

CHLOROSIS.

The Lactate of Iron.—The authors adduce several cases of chlorosis and other states of the system which are usually relieved by steel medicines, in which the lactate was administered with excellent effects: in some it succeeded after the usual ferruginous preparations had been fairly used without benefit.

Several reasons have induced us to select the combination of the protoxide with the lactic acid: this acid is widely diffused through the economy; there is, perhaps, not one part of the body which does not contain a notable quantity of it. Berzelius has detected it in muscle, in milk, and in all the secretions; the perspirable matter owes its acidity to its presence, and a considerable quantity is found in the urine. The solvent power of the gastric juice is perhaps mainly attributable to the presence of the lactic acid; the traces of the hydrochloric are, it is now generally admitted, very feeble.

It must, therefore, be the lactate that is formed in the stomach, when any steel medicine is swallowed.

It is easily prepared by treating iron filings with diluted lactic acid. The water is decomposed, hydrogen is evolved, and the oxygen combines with the iron. When the evolution of the gas ceases, the solution is filtered and then evaporated until a pellicle forms on the surface; the salt crystallizes on cooling.

The lactate is not very soluble in water, and a high heat decomposes it. It is not readily affected by exposure to the air.

It may be administered in the form of pastilles, drops or lozenges: the sugar which enters into the composition of these prevents the further oxydation of the salt. The dose is from four to fifteen grains.

Part ii., p. 77.

Treatment of Chlorosis.—Dr. Ashwell remarks:

Our first attention must be directed to the improvement of the state of the digestive organs, for, how shall we amend the deteriorated condition of the blood, until the organs of nutrition are in a fitting state for its elimination. But here a prudent hand must guide the means: our object is not to excite excessive purging, as a direct mode of cure, but to secure the due relief of the bowels by aloes and rhubarb, sulphate of soda and manna, and, where alteratives are required, the hyd. c. cretâ. Mild cordials should be combined with the aperients. Warm clothing, regular exercise, and when the state of the appetite will permit, meat diet and mild malt drink, are to be recommended. If we succeed in improving the state of the digestive organs, the general vigor is in some degree restored, and the complexion partially cleared, but the catamenia are seldom by this alone induced. Now is the appropriate period for the administration of iron, especially the *sulphate*, while, had this remedy been employed prior to the due regulation of the secretions of the alimentary canal, the symptoms would have become aggravated, and not relieved. Its effect, when given judiciously, is sometimes magical. In some cases the subcarbonate is better borne, and occasionally other tonics, as quinine, sarsaparilla, zinc, etc., effect the purpose.

As to *emmenagogues*, they are best employed when the pallor has become diminished, the bowels more regular, and the blood both more

abundant and of richer quality. *Iron* (and especially the iodide, when the strumous diathesis is associated with chlorosis) is often alone a sufficient emmenagogue. The use of the mustard hip-bath, and of the local salt shower-bath across the loins, are excellent adjuvants. The injection of the vagina with the strong ammonia (liq. ammon. 3j. lactis lbj.) has proved useful in the hospital. Dr. A. has great doubts of the utility of applying leeches and cataplasms to the mammae; he has often seen electricity useful. Travelling, with the change of scene and of habits it necessitates, as also a visit to chalybeate waters, and a sea voyage, have often cured chlorosis. The treatment requires to be early adopted, and most perseveringly continued, perhaps for months. As the cure progresses the diet should be improved, and the patient permitted to take mild ale or porter, or, if these are disagreeable, a little negus with her meals.

Part iii., p. 40.

Local Emmenagogues.—The author does not believe that there are any medicines which exert a specific effect upon the menstrual secretions, but that there are several, which, by reason of their stimulating the uterus, become important auxiliaries. These means are contra-indicated in amenorrhœa and chlorosis, arising from malformation or absence of the generative organs, as also in cases of mere absence or slow development of puberty, or when the amenorrhœa is connected with phthisis or plethora. They are found useful in inactivity of the uterus, occurring after the establishment of puberty, where neither plethora, or marked delicacy of constitution is present, as also in hysterical irritable women, in whose cases cordials and tonics have been tried in vain. In chronic suppression they are especially indicated. Their exhibition should be preceded by local depletion, regulated diet, and purgatives.

The only powerful emmenagogue by which the uterus can be directly stimulated, is *electricity*. Although employed with some success of late at Guy's, it is an uncertain remedy, and should be very cautiously used.

Leeching the Os Uteri.—If some leeches be applied by means of a glass, a few days prior to the period, and repeated several times, by removing the congestion, they will frequently reproduce the secretion.

Stimulant Injections of the Vagina.—Dr. Ashwell speaks highly in favor of the ammoniacal injection. It should be commenced three days prior to the expected period, and should be retained in the vagina for ten or fifteen minutes, by closing the vulva with a napkin. It should produce a sense of heat, tingling, or even of pain, and should not be employed when congestion is present. He reprobates, as risking the excitement of peritonitis, the injection of the uterine cavity itself.

Mustard Hip-Bath is often very useful, but the patient should remain in it an hour each time. The exhibition of *mustard* by the mouth (gr. 8-12 ter quaterve ex M. camph.), just prior to the menstrual period, is often attended with excellent effect.

Part iii., p. 41.

Secale Cornutum.—Dr. Fyfe recommends the ergot as an emmenagogue, combined with valerian, if nervousness predominate, and with Barbadoes aloes, where the alvine system is torpid. Dose of the powder, from 10 to 20 grains. Of the concentrated tincture, from half a drachm to a drachm.

As it is a direct stimulant to the uterus, producing a wonderful increase

of muscular contraction during parturition, and probably a contraction of its tissues, even in the unimpregnated state, it seems likely to be of great use in many diseases of the womb, resulting from a want of power, as well as for the purpose of expelling foreign bodies, such as polypi. We shall thus find it exceedingly useful in menorrhagia, when not combined with inordinate action of the general system—in leucorrhœa when independent of inflammatory action—and also in chlorosis with amenorrhœa, and in dysmenorrhœa; bearing in mind that it directly stimulates or excites the organ, and is therefore inadmissible when the womb is already in a state of excitement or inflammation. There is no doubt of its good effects in both menorrhagia and leucorrhœa when given with the preceding limitations, and Dr. Fyfe has also found it of value in cases of dysmenorrhœa, that troublesome affection which often baffles the effects of our most powerful remedies. In one case of this kind, where the pain amounted to torture, it appeared almost magical in its effects. *Part iv., p. 14.*

Pills of Proto-Iodide of Iron.—The following is the formula for the *pillule proto-iodidi ferri*:

Take of Iodine	121 grains.
Iron	242
Distilled water.....	378

Proceed with these to form a normal solution; filter, and pour the solution into an untinned iron vessel; add Narbonne honey, 302 grains; evaporate rapidly, until a great part of the original water be dissipated, and a sirupy consistence shall be attained; then add at intervals, continually agitating with an iron spatula, powder of gum tragacanth 184 grains. Form a mass, and divide it into 200 pills. Each pill will contain almost exactly three-quarters of a grain of proto-iodide of iron. These pills remain a long time unaltered. Dr. Dupasquier says that they may be used in place of the pills of Vallet or those of Bland in the cure of chlorosis. *Part iv., p. 58.*

Clinkers.—"Clinkers" is the refuse of the blacksmith's forge, and differs from common ashes and coke in its greater specific gravity, component parts, and external appearance. As a medicine in cachectic disorders, particularly those of females, it has been used, and the success which attends its exhibition, particularly in chlorotic disorders, is such as to have won for it the title of "specific."

The following is the formula for its preparation: The bluest and heaviest clinker, being selected from the mass, is reduced to an impalpable powder (a work of no small difficulty, on account of its metalloïd nature). Any quantity of this powder may be mixed, with a sufficiency of treacle, to form a stiff paste; and to every eight ounces of the mass, half an ounce of magnesia, and the like quantity of ginger, must be added. Thus formed, it is anything but inviting to the eye; but this can be remedied by using honey in lieu of treacle, and adding half a drachm of the peroxide of iron to the compound. It must be taken three successive days and nights (twice a day), for three days; omitted for a like period, and so continued until the course which has been decided upon should be finished. The dose is a teaspoonful. Experience has demonstrated that constitutional irritation supervenes, unless some decided interval is allowed at stated periods during a course of this remedy. *Part v., p. 57.*

Treatment of Chlorosis.—In treating chlorosis, our first object should be to endeavor to get the viscera into a more healthy state of action, and this will be best done by mild aperients. The compounds of aloes, as the decoct. aloes comp.; pil. aloes comp.; pil. aloes c. myrrha; will all be found desirable remedies for this purpose; or a few grains of the blue-pill at bed-time, followed by a draught with the decoct. aloes comp., in the morning.

Violent purging must be avoided. After the full evacuation of the bowels, any of the preparations of iron, as the ferri sulphas, ferri ammonias, ferri carbonas, the mist. ferri comp. ferri iodid., may be prescribed, as being valuable remedies in chlorosis. We have found the following formulæ of great benefit:

R Ferri sulphatis, gr. xxiv.; quinae disulphatis, gr. xij.; extr. gentianæ, qss.

M. Ft. pilulæ, xij.; cap. j. vel ij., ter die. Or:

R Quinae disulphatis, gr. xij.; ferri sulphatis, gr. xxiv.; pulv. opii, gr. iij.; extr. gentian., qss.

M. Ft. pilulæ, xij.; cap j. vel ij., ter die.

Dr. M. Hall recommends, after the evacuation of the bowels, pills consisting of two grains of the Barbadoes aloes, and the same quantity of the sulphate of iron, taken daily during dinner, as most efficacious; indeed, he has found them almost specific. Dr. Copland recommends the following should be taken either during or after dinner:

R Aloes, socot, ferri sulphatis, aa. gr. ij.; gum mastice, gr. j.; pulv. capsici, gr. ij.; syr. simpl., vel olei caryoph., q. s.

M. Ft. pilulæ duæ. Or:

R Aloes, 3ij.; assafetidæ, myrrhæ, aa. 3ss.; ferri sulphatis, 3j.; caryophyllorum in pulv., ʒj.; pulv. capsici, gr. xxvi.; balsam. canad., q. s.

M. Ft. pil. lxvi.; quarum capiat i. vel ij. pro dose.

In addition to the above remedies, warm clothing, regular exercise in the open air, particularly on horseback, nutritious diet with a moderate quantity of wine, must be enforced. Patients suffering under this disease, and residing in large cities, will often more rapidly recover by removal to a country residence, or a visit to the sea-coast. Sea-bathing, when a *sufficient reaction to the skin follows*, will be also serviceable. The above means are often sufficient to remedy the disease. In the more protracted cases, attended with difficult or scanty menstruation, Dr. Copland recommends the tinct. ferri ammoniati, or the tinct. guaiaci ammoniati, and phosphate of iron, in preference to the sulphate of iron. The decoct. aloes comp. as the most suitable aperient. The ammoniacal injection, composed of one drachm of the pure liquor ammoniæ, to a pint of milk, and injected daily into the vagina, is sometimes useful in promoting the catamenial secretion.

Part vi., p. 77.

Various Modes of Treatment.—The treatment of this affection, with scarcely an exception, consisted in the administration of the sesquioxide of iron, in doses from half a drachm to a drachm, twice or three times a day, with or without an equal quantity of the compound spirits of ammonia. The bowels were regulated by aloetic aperients, conjoined with the sulphate of iron, and occasionally with calomel. Gastric and head symptoms were relieved by an emetic, and local pains by warm plasters, opiate and irritant embrocations, mustard poultice, or a blister. The diet was dry

and nutritious, and everything done to invigorate the general health. One great practical difficulty is to secure regularity and perseverance in taking the medicine, and the bulk of the sesquioxide forms the principal objection to its use.

It may not be unprofitable to glance briefly at some other preparations of steel which experience has sanctioned. The muriated tincture is a cheap, convenient, and efficient form, in doses from twenty to sixty drops twice or thrice daily, given in water, infusion of ginger, or quassia.

Dr. McDivitt, in his report of the Kent and Canterbury Hospital, is very partial to the following draught:

R Muriated tincture of iron, half a drachm; tincture of hyosciamus, one drachm; tincture of aloes, half a drachm or a drachm; infusion of quassia, ten drachms. Mix. Three times a day.

The acid solution of the oxysulphate of iron is a still more agreeable form, and has been extensively used by the practitioners of Derbyshire and the north of England, and admits of convenient combination with the sulphates of magnesia and soda.

Mr. Dyson gives the following formula:

R Sulphate of iron, two or three drachms; nitric acid, three drachms; distilled water, one ounce and a half. Mix.

Rub the acid and salt together in a glass mortar for a quarter of an hour, then add the water gradually, and strain through paper; of this the dose is from five to twelve drops twice a day.

The persesquinitrate of iron is an elegant form, and, like the muriate, and probably also the preceding, is well adapted for cases where the bowels are irritable, and other chronic mucous discharges are present. It is particularly recommended by Drs. Graves, Kopp, and Adam, under these circumstances.

The "aqua chalybeata" of Messrs. Bewly and Evans, Dublin, contains thirteen grains of the citrate to the pint, dissolved in water highly charged with carbonic acid and flavored with orange peel. It is highly recommended as a most grateful and refreshing chalybeate.

The acetate of iron of the Dublin Pharmacopæia, made by digesting for three days one part of the carbonate of iron in six of acetic acid, is a favorite preparation with many practitioners in Ireland. Dr. Percival, who was much attached to it, used to prescribe it in asses' milk.

Dr. Lane, in his compendium of *Materia Medica*, insists on the value of giving alkalies with steel. The following powder, he says, will secure all the good effects of a chalybeate, and more certainly than in large quantities when uncombined:

R Sesquioxide of iron, five to ten grains; sesquicarbonate of ammonia, two to three grains; sesquicarbonate of soda, ten grains. Mix.

Dr. Ashwell has, in a "variety of cases," where the sulphate and other preparations of iron disagreed, given the subjoined powder, once or twice a day, with success:

R Blue sulphate of iron, in fine powder, half an ounce; calcined magnesia, two scruples; water, six ounces; tincture of quassia, two drachms. Divide into six draughts, one to be given night and morning.

The ferri carbonas saccharatum of the Edinburgh College ("Christison's Dispensatory," p. 425) is a powerful and excellent medicine. Dr. Clarke found it to surpass greatly the sesquioxide in energy. The dose is also smaller; from five to thirty grains.

The "ferri iodidi sirupus" is deserving of adoption both as regards accuracy and elegance of prescription. A saccharine iodide, obtained by drying up the sirup, Dr. Christison considers should replace the present preparation.

We are indebted to the same source for an improved formula of the celebrated *Æthiops martial*, under the name of "ferri oxydum nigrum," which has not yet been subjected to a practical trial.

It is also probable that the anhydrous sesquioxide of iron, recommended as an antidote against arsenic, would prove a very excellent chalybeate.

There is much evidence in favor of the following pills, which are similar to Bland's antineurotic pills, forty-eight of which were considered sufficient for the cure of a chlorotic patient:

R Powder of tragacanth, six grains; mucilage of acacia, seven drops. Mix, and add powdered sulphate of iron, a drachm and a half; rub well together, and then add a drachm and a half of subcarbonate of potash. To be made into twenty pills. One to be taken night and morning.

Part viii., p. 30.

Inspissated Bile.—The following is suggested in cases of chlorosis attended with defective biliary secretion:

R Two or three grains of the inspissated bile of swine; one grain of ipecac, and two grains of carbonate of potash. Form a pill.

Part viii., p. 71.

Saffron.—In several cases of obstinate chlorosis that had not yielded to preparations of iron, in one case of puerperal fever in which digitalis and bleeding had failed, and in two cases of chronic artero-plebitis, Dr. Morgante, of Verona, reports that he has employed saffron with the greatest success, commencing with doses in the form of pills, amounting to sixteen grains in the twenty-four hours, increasing the doses until the quantity is doubled. As to the manner in which this medicine acts—it is reported to be particularly effective in cases of increased action of the capillary vessels, and analogous in its effects to the more active preparations of iron.

Part viii., p. 77.

Treatment of Chlorosis.—[Dr. Ashwell recommends iodide of iron in cases of chlorosis, attended with strumous habit of body. The form in which he employs this remedy is the following:]

R Ferri iodidi, gr. xvj.; tinct. calumbæ vel gent. co. ʒj.; aquæ destillatæ, ʒviij. ft. mist.; sumat cochl. ij. magna bis terve quotidie.

The supposed frequency of affection of the os and cervix uteri in connexion with the leucorrhœal discharges, which has been regarded as furnishing one of the most valid reasons for a far more general use of the speculum than is accordant with English feelings, is regarded by Dr. Ashwell as a mistaken notion. The cervix uteri indeed is occasionally soft, and the os patulous, or, at least, these tissues are all found to be relaxed. In several instances in which he used the speculum, the cervix was pale; in more acute cases slightly red; twice he found it of a deep crimson hue; but he never observed either erosion or ulceration, except when there was suspicion of venereal taint.

Part xi., p. 228.

Treatment of Chlorosis.—*Vide Art. "Anæmia."*

Chlorosis.—There are cases of chlorosis marked by an increase rather than a diminution of the total amount of blood; it is not a necessary condition, but it is more certainly and frequently a change in its quality. It is identical with anæmia.

When there is increase of blood, blood-letting, leeches, or cupping are recommended.

When pain on pressure in some region of the spinal cord, cup or apply leeches, or repeated blisters on either side of the spine. Moderate punctionation; use anodynes sparingly and cautiously, and this may apply also to the use of aconite or cannabis indica. The local application of these anodynes may be tried with much advantage, by means of soaked lint, either with or without the removal of the cuticle. Sulphate of veratrine \mathfrak{ss} . to \mathfrak{ij} . of axunge is very efficacious. Where the pains are very obstinate and severe, *firing* lightly applied may be tried.

Where there is great disturbance of the digestive functions, give warm cordial cathartics; one or two drops of creosote in pill thrice daily, alone, or with compound galbanum pill; finely powdered charcoal (of which that from boxwood is the best); or the following: Fine charcoal, calcined magnesia, aa. gr. x., powdered nutmeg, five grs. Mix. This, mixed cautiously with, and taken in, milk and water, two or three times a-day.

The *essential* treatment, as it has special regard to the normal character of the red particles of the blood, must consist in the administration of iron (if no contra-indicating conditions). If idiosyncrasy prove a constitution intolerant of iron, then make trial of bismuth, either alone, or in combination with carbonate of ammonia, and the salts of Peruvian bark. If iron can be tolerated, then the muriated tincture; the acetated tincture of Dr. Percival, of Dublin; vinum ferri; or Bewley's solution of the super-carbonate; mist. ferri comp.; bark, iron, and ammonia; citrate of iron and quinine; comp. ferri pill. with sulph. of quinine; and the saccharine proto-carbonate.

When a mild aperient is necessary during the use of iron, the following is recommended: Sodæ bicarb. gr. xv.; acid. tartaric., gr. x.; sulph. ferri (siccat.) gr. j. ad gr. v.; sacchari albi, 3ss. to be kept dry, dissolved in a wine-glassful of water, and swallowed whilst effervescing.

Dr. Freke recommends the hydro-sulphuret of ammonia to diminish the number of red corpuscles in the blood, on the supposition that it appropriates a portion of that iron which would otherwise contribute to the formation of the red globules.

Part xiv., p. 310.

Tannate of Iron in the Treatment of Chlorosis.—This substance, according to M. Benedetti, excels all other medicines in the treatment of chlorosis. In evidence of this, he cites cases from his own and from the practice of Majocchi, affirming that the treatment by the tannate of iron is successful in from twelve to twenty-five days, according to the severity of the case. It is to be administered in doses of from eight to thirty grains in the day. It acts more rapidly in persons of sanguine temperament.

Part xiv., p. 315.

Chlorosis.—Salts of manganese are recommended, especially in those cases which are not much benefited by iron. The sulphate, carbonate, or phosphate of manganese may be given in the form of pill, to the extent of three or four grains daily; or the phosphate or iodide may be given in sirup.

Part xx., p. 35.

Chlorosis.—Wheaten bread is said to be rendered much more nutritive for chlorotic patients, by adding a small quantity of sulphate of iron.

Part xxiii., p. 304.

Chlorosis.—In those tedious cases where a girl eats heartily, takes plenty of sleep and exercise, has nothing on her mind, yet derives but little benefit from good food and judicious treatment, Professor Recamier recommends his galvanic poultices; one of the disks being applied to the epigastric region, the other to the spine.

Part xxiv., p. 348.

Sulphate of Nickel.—Use of in Chlorotic Headache.—*Vide Art. "Headache."*

Deficient Menstruation commonly termed Chlorosis.—Dr. Oke observes: In ordinary cases one of the following pills (*a*) is to be taken every other night, and two of the pills (*b*) three times a day:

(*a*) R Hydrargyri chloridi, gr. xij; pilulæ aloes cum myrrha, gr. xlvij; sirupi, q. s. Misce et divide in pilulas xij.

(*b*) R Pilulæ ferri comp. ʒijj. Divide in pil. xxxvj.

If there be diarrhœa, the pills (*c*) are to be taken instead, leaving out, of course, the aperient:

(*c*) R Pilulæ ferri comp. ʒijj.; pulveris opii gr. iv.; sirupi, q. s. Misce et divide in pilulas xxxvj. quarum capiat duas ter die.

It constantly happens that an individual cannot swallow medicine in the form of pills, in which case (*d*) may be prescribed with equal success.

(*d*) R Mixture ferri comp. ʒviij.; decocti aloes comp. ʒiv. Misco. Capiat ʒiss. ter quotidie.

If necessary, the bowels may be regulated by the powder (*e*) taken in jelly:

(*e*) R Hydrargyri chloridi gr. j.; aloes socot. pulv. gr. iij.; pulv. cinnamomi comp. gr. ij. Misco. Fiat pulvis noctibus alternis sumendus.

This treatment will bring about convalescence in six weeks or two months, without any change of locality.

Part xxviii., p. 286.

Chlorosis.—*Vide Selections from Favorite Prescriptions, Art. "Medicines,"*

CHOLERA.

Enema of Nitrate of Silver.—Recommended in cholera.

Part i., p. 75.

Tincture of Indian Hemp.—Recommended in cholera, in doses of ten drops, every half hour, to check vomiting and purging, and restore warmth to the surface.

Part ii., p. 31.

Diacetate of Lead.—Case of Asiatic cholera cited, in which the patient recovered, under the administration of one grain of diacetate of lead dissolved in a teaspoonful of acidulated water, repeated every ten minutes.

Part v., p. 75.

Ipecacuanha in Emetic Doses, a Restorative in cases of Sinking, etc.—Mr. Higginbottom first witnessed the good effects of ipecacuanha

as an emetic in a woman sinking in the last stage of cholera. Having lost two patients in a similar condition to whom he had given opium and brandy, he was induced to try ℥j. of ipecacuanha as a last resource, from having seen it of benefit in the early stages. Two or three hours after, when he again saw her, the warmth of the body was restored, the dangerous symptoms had disappeared, and she was soon convalescent.

Part xii., p. 133.

Cholera (Asiatic).—Three objects, according to Mr. Clark, are to be observed in its treatment, viz.: 1. To moderate the morbid action established for expelling the poison, by replenishing the fluids. Give the patient a fluid for drink, consisting, as nearly as possible, of similar elements to the serum, as albumen, muriate of soda, and carbonate of soda in a very dilute state; give also effervescing salines. 2. To prevent local engorgements, particularly of the liver and vena portæ. Remove a quantity of blood proportionable to the exigency of the case, and the organ congested. 3. To promote healthy secretion, and allay pain, irritation, and spasm. Give calomel and Dover's powder freely, until the vomiting and purging are restrained.

Part xiv., p. 83.

Treatment of Cholera.—On first visiting a patient in this disease Dr. Ollapod, of Madras, gives calomel, ten grains; rhubarb, ten grains; compound powder of aloes, ten grains; mixed and formed into a bolus. This, he says, I follow up with ten or fifteen minims of liquor ammonia, mixed in a little cold water, and I repeat this dose in half an hour, if rejected; otherwise, I give a second, and even a third dose. To quell the stomach's irritability, effervescing draughts of carbonate of soda and tartaric acid, in small and repeated doses, are given, and soda water is prescribed to allay the intolerable thirst. The liquor ammonia, I at the same time use undiluted, externally, over the chest, abdomen, and upper and lower extremities, as a rubefacient, while I pay attention to the head by cold applications of water or vinegar and water.

The after-treatment is simple enough—namely, the exhibiting a laxative after the second or third day, and tonics for a week afterward. Opium in any shape, given in cholera—too universally resorted to—I have remarked, tends to embarrass the cerebral functions, causing pervigilation, and, by consequence, commotion of the *vis vitæ*.”

Part xiv., p. 86.

Prophylactic and General Treatment of Cholera.—Prophylactics: live regularly, avoid fatigue and exposure, use flannel clothing, and take quinine and tonics.

Treatment.—Encourage vomiting by warm diluents; keep the body enveloped in flannel, especially the abdomen and loins. Rub the epigastrium well with liq. lyttæ, and then apply a blister, which is the most important part of the treatment. Give effervescing draughts for the thirst. If the dyspnœa is urgent, bleed or apply leeches to the chest; and if it then continue, apply the liq. lyttæ and the blister.

Part xv., p. 113.

Vomiting of Cholera—Asiatic.—For the vomiting give a scruple of epsom salts, with five grains of magnesia, and two or three drops of laudanum, in a tablespoonful of water, every three or four hours or oftener. Bismuth has been used with good effect to relieve the spasms. *Vide Art. "Vomiting."*

Part xvi., p. 151.

Treatment of Cholera.—Dr. Massy says: If the disease commences like common bilious cholera, give acetate of lead and opium, or chalk mixture with opium and aromatic confection; give effervescing draughts with laudanum to allay the vomiting, keep the patient warm in bed, and the next day give a large emollient injection. But if the more severe and characteristic symptoms come on, or if there is great debility from the first, and cramps or coldness of the skin are observed, bleed largely, if the pulse will allow, and give a scruple of calomel with a grain of opium; after twenty minutes, give ten grains of calomel and half a grain of opium. When the calomel has acted well on the bowels, and large quantities of bile have been passed by stool, opium alone may be given, but not till then. If the disease is very far advanced when the patient is first seen, or if the attack has consisted in sudden collapse, almost without cramps, vomiting, or purging, apply stimulant liniments, sinapisms, etc., to the legs and stomach, rub hot turpentine along the spine, or apply a blister to the nape; give turpentine injections or mustard emetics, and bleed; giving also internal stimulants, punch, brandy, or carbonate of ammonia.

Part xvii., p. 108.

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Dr. King's advice is, use neither internal nor external stimulants, nor artificial heat; but give calomel, and let the patient drink cold water. The first appearance of bile in the ejections from the stomach and bowels, is evidence of recovery.

Part xvii., p. 111.

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Dr. Turnbull directs the patient to be rubbed well with a preparation of capsicum, over the abdomen, heart, and calves of the legs, several times a day, or at any time when there is coldness of the surface, or spasm; continuing the rubbing each time, till the patient feels the heat intolerable. The advantage of capsicum is that it does not blister.

Part xvii., p. 112.

Asiatic Cholera—Treatment of the Precursory Diarrhœa.—Do not instantly check the diarrhœa, as it is probable that the poison is passing off by the intestines. But moderate the irritation by gentle opiates; act upon the skin and kidneys; give plenty of demulcent drinks, and free pure air; take care not to irritate the gastro-intestinal mucous membrane; and as an antidote to the poison in the blood, give a few doses of quinine, or the vegetable acids. Perhaps the best formula would be, a grain or two of amorphous quinine with two or three grains of tartaric acid and a few minims of laudanum, every six hours.

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If the diarrhœa is without pain, give from four to eight drops of naphtha; not the naphtha of the shops, or acetone, nor the petroleum or Barbadoes tar, but a pure white or rose-colored naphtha (not distilled), which is procured, it is supposed, on the borders of the Caspian. It should be given in brandy, white wine, or mint tea, taken cold. A single dose is usually sufficient, but it may require repetition in two or three days. If, however, pain accompanies the diarrhœa, treat the case simply with opium.

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If the attack begins with nausea, give a gentle emetic, as pulv. ipecac. \mathfrak{ss} .; but if here is only relaxation and uneasiness of the bowels, give four

grains of calomel and two of extract of opium followed in two hours by a dose of castor oil. And in about two hours after this, give two table-spoonfuls of the following mixture every two, three, or four hours: ℞ Ammon. sesquicarb. ℥j.; soda sesquicarb. ℥j.; conf. aromat. ℥j.; tinct. capsici mxxx.; liq. opii sedat. mxxx.; mist. camph. ad ℥vj.; misce. And give three grains of hydr. creta. and three of powdered capsicum every four hours; always taking care not to carry the mercurial too far.

Treatment of the fully-formed Disease—Calomel.—Give calomel in one or two grain doses with one or two drops of laudanum every five or ten minutes for several successive hours, with an occasional omission of the laudanum at intervals. An immense quantity of calomel may thus be taken with the most beneficial effects, and without ptyalism resulting. No auxiliary means are required, beyond supporting the strength of the patient, and applying friction for the cramps.

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•Nothing can be trusted but calomel, when once the stools have assumed the rice-water character; therefore five grains are to be given every four hours until a large bilious evacuation is produced. But it is necessary, at the meantime, to restrain the discharge from the bowels, and the best remedy that can be used for this purpose, is the compound sulphate enema, composed of sulphate of copper, sulphate of zinc, and alum, a scruple of each dissolved in two ounces of cold water. A wineglassful of this solution is to be thrown into the rectum, and the patient instructed to retain it as long as possible: it will probably be returned almost immediately, accompanied by a large discharge of watery fluid. Another wineglassful is to be instantly thrown up; and if this comes away accompanied by a watery discharge, the enema is to be again repeated, until it either returns without any addition, or is retained. Two or three enemata are usually sufficient to check the discharge; they generally occasion considerable tenesmus, which may be relieved when the patient is freed from the graver symptoms, by an enema of starch and laudanum. If the watery discharge should return, the sulphate enemata are to be again immediately resorted to. If there is discharge of pure blood, or bloody fluid, solution of alum must be injected. Each injection should consist of three drachms of alum dissolved in half a pint of cold water; and as fast as one injection comes away, another must be instantly given, so long as there is any appearance of blood.

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Give a pill composed of acetate of lead and opium (℞ Plumbi acet. ℥j.; opii gr. j.; pulv. glycyrrhiz. gr. vj.; mucil. acacia q. s. M. ft. pil. xij.; every half hour, till the rice-water diarrhoea begins to diminish, when the intervals between each pill may be gradually prolonged.

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Give two grains of acetate of lead and a half a grain of opium, every hour or two for a few times. Apply mustard poultices, hot bottles, and frictions of warm turpentine. And give mustard enetics every hour or two, with a view to bring on reaction.

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Give oil of turpentine, which is almost a specific in passive hemorrhages, and which will exercise a similar power over the serous effusion from the mucous membrane of the bowels.

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Give one-eighteenth part of a grain of strychnine, made into a pill with conserve of roses, every quarter of an hour, and let it be washed down with copious draughts of cold water. The first three or four pills will probably be rejected.

The most important remedies are copious diluents, which relieve, in the gentlest manner, the irritation of the stomach and bowels; and of these, the common effervescing draughts seemed to answer the purpose admirably, and are extremely grateful. They should be taken *ad libitum*, as the thirst prompts. Treat the cramps in the legs by applying hot fomentations to the loins and stomach. As to other remedies, bleeding alone will not cure the disease, and if the diluent system is resorted to early, bleeding will be unnecessary; but in some neglected cases may require the abstraction of blood, which must always be accompanied by the free exhibition of diluents.

Dissolve five grains of tartarized antimony in half a pint of camphor mixture, and give an ounce every two hours; and urge the patient to drink freely of toast water. As soon as vomiting begins, encourage it with the toast water; and keep the patient drinking and vomiting until the stomach becomes tolerant both of the antimony and the fluid, when the quantity of the toast water drunk may be diminished. When cramps attack the abdomen, apply sinapisms. As soon as a bilious stool, or similar favorable sign occurs, omit the medicine, apply warmth to the feet, and give a little arrow-root flavored or not with brandy. The patient will usually fall into a quiet sleep, and the next morning a little castor-oil may be given.

Give about six drops of chloroform, with about forty of oil of turpentine, in a little brandy and water; apply sinapisms; and allow the patient to drink freely of water. In half an hour after the chloroform, give five grains of calomel, and ten of ox-gall, made into pills. Repeat the draught and pills in an hour or two if necessary.

Employ the warm bath, and use vigorous frictions of all parts of the body. And give from fifteen to twenty drops of naphtha, and if it is vomited, repeat the dose; a second is rarely required if the first be retained. The naphtha is not the ordinary naphtha of the shops, nor yet the petroleum, or Barbadoes tar; but a pure white or rose-colored fluid, not distilled, but found native, it is supposed, on the borders of the Caspian.

Give petroleum (petroleum Barbadosense), or pure hydrocarbon, in the following form: Take the yolk of an egg, and mix intimately with it a tablespoonful of petroleum; add forty drops of aromatic spirit of ammonia, and equal quantities of brandy and water to fill a wine-glass; and this dose may be repeated according to the emergency of the case.

Give naphthaline in one or two grain doses, in the form of pill, along with opium or aromatic confection. The cases in which this remedy is applicable, are chiefly those in which great flatulence and a tympanitic state of the bowel exists.

When a case is verging into the stage of collapse, it is proposed to take from a vein as much blood as can reasonably be abstracted, and then to transfuse warm blood from a healthy subject, and to keep up respiration with a mixture of equal parts of oxygen and atmospheric air, by means of a modification of the mouthpiece of Sibson's chloroform inhaler.

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Camphor and laudanum in small doses, antiseptic fumigations, and stimulating frictions, are recommended.

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Hot air and vapor baths are recommended.

Dr. Wood says: "I have been in the habit of recommending a cheap and easy mode of applying the vapor bath, for many years, by placing a hot brick in a tub of water, the patient being enveloped in a flannel gown or blankets round it, of course the head external. I have found this convenient, expeditious, and of great comfort to both rich and poor. At the same time, I beg to observe, that I think medical men lose sight, in many cases of debilitated patients, of the great advantage of the vapor bath over the hot bath, the latter sometimes losing its beneficial effects by the patient being exposed to its influence too long."

Dr. R. Chambers suggests a spirit-lamp incased in a double cylinder of wire gauze, and inclosed in a light wooden framework.

"About one ounce and a half of rectified spirit will keep it in action for an hour. When desirable, the vapor of camphor may be conjoined with it, by placing about two drachms of camphor upon the top of the gauze-cylinder, the heat of which volatilizes it.

"For application it only requires to be trimmed as an ordinary spirit-lamp, and when ignited, to be placed between the patient's lower extremities, an extra blanket being placed upon the ordinary bed-clothes. From fifteen to thirty minutes will be sufficient for a single application, and so powerful is it, that I have known the perspiration to drop through the bed."

Part xviii., p. 305-326.

Asiatic Cholera.—On the first appearance of premonitory symptoms, give a Seidlitz powder, or if the patient has a sense of sinking, without diarrhoea, add three drachms of Epsom salts to the Seidlitz; and, when it begins to act, let the patient drink freely of thin beef-tea, well salted. If there is vomiting, apply a sinapism to the epigastrium; if intense thirst, allow Seltzer, soda or plain water, ad libitum.

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When the purging is not restrainable by opium, kino and chalk, in full doses, give a pill containing a grain of nitrate of silver, and a quarter of a grain of opium, every hour, to the extent of five or six doses, or even more, if necessary.

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Give opium fearlessly, but judiciously, unless collapse is approaching, when it must not be given. To children give the following: ext. hematox., ℥ij.; vin. ipec., 3j.; vin. opii, mx.; aq. cinnam. ʒiv. Of this, give ʒj. after every motion, to a child six months old; ʒij. to a child one year; and ʒss. to one of two years. Feed the child on milk mixed with a little lime water, keep it in bed and cover the abdomen with hot linseed-meal poultices. * * * * *

Nitro-hydrochloric acid has been found useful, when the stomach would bear nothing else.

Give the following draught every hour or every two hours: Strong nitric acid, two and a half to eight minims; tincture of opium, four to eight minims; syrup of saffron, a drachm; water, an ounce and a half.

Give two table-spoonfuls of the following mixture every two hours, and no astringents whatever: R Creasot. gtt. xvj.; mist. acacia, ℥ss.; sp. ammon. co., sp. camph. aa. ʒij.; ether. chlor. ʒiij.; aquæ ʒviss. M.

Give sirup of perntrate of iron (which is make with clean iron wire ʒvj.; nitric acid ʒiss.; water ʒviij.; sugar ʒxiv). To each ounce of this sirup, add tinct. opii ʒj.; sp. camph., gtt. xxx.; and give sixteen or twenty drops in a little water every hour till relief is obtained. If there is very much pain, add tinct. capsic. ʒj. to the ounce of sirup, and give the dose in a little burnt brandy.

Give the liq. chlorinii of the Edinburgh Pharmacopœia, in doses of ʒj. or ʒiss. in water, every hour, until the symptoms are relieved.

Give from mv. to mxv. of chloroform internally, every hour or two, mixed with mucilage; and let the patient drink freely of milk and cold water, with a little sesquicarbonate of soda in it.

Developed Cholera.—Give two grains of calomel, and two drops of laudanum every ten minutes; employ a hot air bath, and place a drachm of strong mercurial ointment in each axilla; and give ten drops of chloroform with every alternate dose of the calomel. Omit the opiate and chloroform, and give the calomel at longer intervals, when reaction commences. The readiest way of administering the calomel, is to put two drachms on a sheet of paper, and divide into sixty parts; one of these to be given for a dose, from the point of a table-knife. And as to the opiate, bale out any number of spoonfuls of water, and add twice the number of drops of laudanum: then, by giving a spoonful of the mixture, using the same spoon, exactly two drops of laudanum will be given.

Place on the tongue two grains of calomel, mixed with a little sugar, and let it be washed down by an effervescing draught. If it is rejected, repeat the dose immediately; if retained, repeat every five or ten minutes till reaction commences, when the period between each dose may be gradually extended to an hour or longer. Large doses, at long intervals, are of no use.

Give twenty or thirty grains of calomel at once; repeat it in ten minutes; and employ such auxiliary means as warmth, friction and gentle stimulants.

Complete recovery from the state of collapse has followed the administration of a scruple of calomel every hour for three times.

In the stage of collapse give small and frequent doses of chlorate of potash, bicarbonate of soda, and hydrochloric ether, largely diluted in

camphor water, or with the patient's drink; or aqua chlorinii with hydrochloric ether, in the same vehicle; and persist in giving them though the vomiting continue. If reaction follow, give calomel and camphor; and in this stage, if the kidneys do not act, give diuretic salts, and employ embrocations with turpentine to the loins, or give an enema containing a little spirit of turpentine.

Use saline injections in the stage of collapse. A quart of water at 98° Fahr., with a drachm of common salt and half a drachm of sulphate of potash, may be injected into a vein in the arm. As soon as the pulse is established, envelop the patient in a sheet wrung out of cold water, cover him with several layers of blankets, and apply hot bottles to the epigastrium and calves. After the profuse perspiration which this occasions has continued for, say, upward of an hour, remove the blankets and sheet, and put the patient in hot blankets. If any fever follows, give calomel and opium.

Transfusion of blood ought to be employed. If sufficient blood cannot be obtained, inject what blood you can get, first, and afterward water containing saline substances.

Inject into the veins six ounces of water at blood-heat, with thirty drops of a solution of morphia of the following strength: crystallized moriate of morphia, five grains; pure hot water, one ounce. When the discharges have been checked by the morphia, give calomel by the mouth, or introduce mercury into the veins in one of the following forms: one grain of corrosive sublimate, five grains of iodide of potassium, an ounce of warm water; or crystallized cyanide of mercury one grain, warm water one ounce. A fluid drachm of either of these solutions may be injected mixed with six ounces of warm water, and repeated if required.

In the stage of collapse, wrap the patient completely, except the head, in a sheet wrung out of boiling water, cover him with eight or ten blankets, and give shortly a little weak brandy and water. After keeping him in the blankets an hour, put him into a clean warm bed. Then give nitrohydrochloric acid with syrup of poppies, either in water or infusion of catechu, every hour or so, if the stomach will bear it.

Wrap the patient in a blanket which has been wrung out of the hottest water, and sprinkled with a handful or two of salt, and put four or five blankets closely round him; this may require renewing in an hour or two. Give cold water *ad libitum*, and beef-tea frequently, but no medicine, except there is much sickness, when a little carbonate of ammonia, and soda, and hydrocyanic acid may be given.

Though the wet sheet, when fairly tried at the London hospital, had the effect of producing reaction, yet all the patients died.

Give an emetic of sulphate of zinc, and repeat it quickly. If it is not followed by reaction, use the warm bath, apply sinapisms to the epigastrium, and, an hour after the emetic, begin to give an effervescing solution of citrate of soda every two or three hours. Give ice and iced water to

allay the thirst, and give enemata of beef-tea, with or without brandy. Stimulants and astringents are both useless.

Chloroform was tried at the London Hospital, given both by the stomach and by inhalation, but all the patients died.

Give a pill containing a grain of nitrate of silver and a quarter of a grain of opium, every hour, to the extent of five or six doses, or even more if necessary. Or, if the evacuations are very profuse, give two or three pills at a dose, and repeat them until the evacuations are wholly or partially arrested.

Give matico in the following manner: Take of tinct. of matico, as strong as it can be prepared, from ʒij. to ʒss.; tinct. of opium, ʒss. to ʒj.; sp. of camphor, mxx. to mxx.; water, ʒss. M. Give a fourth part whenever the sickness or purging comes on. Two doses generally suffice to arrest the disease: but if there is any return, it must be given again.

Give creasote, according to the following formula: R Creasot, mxxiv.; mist. acacie, ʒss.; sp. ammon. co., sp. camph., aa. ʒij.; ether. chlor., ʒii.; aquæ, ʒviiss. M. Cap. ʒj. omni horâ.

In slighter cases, in the more tractable stages of the disease, and in other cases as an adjunct, give a draught containing from two and a half to eight minims of strong nitric acid, four to eight minims of laudanum, a drachm of syrup of saffron, and an ounce and a half of water, every hour or two. But in confirmed forms of the disease, give phosphorus, in doses of one grain made into a pill with white wax. It may be necessary to give one of these pills at intervals of an hour or two, for two or three times, and afterward a dose of the acid mixture.

At an early period, give six grains of quinine, four of calomel and two of opium, followed by a wine-glass of brandy diluted with a little warm water. If given within the first hour or two of seizure, this will generally check the disease.

Employ galvanism, placing one pole of the machine over the heart, and the other over the region of the solar plexus.

Transmit electro-magnetic shocks, so arranged as to imitate the frequency of the respiratory movements, or not more than twenty-five in the minute, from the nape of the neck to the upper part of the epigastrium.

Rub the whole region of the spine with a solution of croton oil and turpentine—one drachm to the ounce—for twenty minutes, and then apply a hot and moist bran poultice, contained in a bag, large enough to cover the whole back.

Let warm water be plentifully injected into the bladder.

Part xx., p. 310-345.

Cholera, Asiatic.—Give one grain of acetate of lead every ten minutes.

Part xxiv., p. 114.

Asiatic Cholera—Prevention.—During the prevalence of cholera, persons in connection with cholera patients should carefully wash their hands before taking food. The soiled linen should be immediately immersed in water as soon as it is removed. The greatest care should be taken that the water for drinking be not contaminated by cesspools, drains, or sewers. If suspected, it should be boiled and filtered. The provisions should be well washed with clean water, and, if possible, exposed to a temperature of at least 212°F. When a case of cholera appears in crowded neighborhoods the healthy should be immediately removed except those absolutely necessary to wait upon the sick.

Calomel Treatment.—Give grain-doses of calomel repeatedly, with one or two drops of laudanum with each dose, up to 24 to 30 drops, when it may be discontinued. Dr. Ayre speaks with the greatest praise of this simple mode of treatment. He says, that as soon as the secretion of the liver is restored a favorable change takes place. It would seem to be very difficult to salivate a patient in this disease.

In collapse pursue the following treatment. Give 15 grains of sulphate of zinc, and 15 grains of ipecacuanha, and repeat the emetic in ten minutes. In about twenty minutes place upon the tongue 20 or 30 grains of calomel, and repeat from 2 to 10 grains or more, every ten, twenty, or thirty minutes, according to the severity of the symptoms. Give beef-tea injections every half hour to support the strength. Allay vomiting or thirst by ice or very cold water, in teaspoonful doses, ad libitum. Avoid giving stimulants. When the stools contain bile, continue small doses of calomel for a short time, then give 20 grains of rhubarb and 30 of sulphate of potash, in peppermint water, or a castor oil draught. Afterward reduce the fever by salines; and lastly, restore the strength by quina, ammonia, etc.

Counter-irritation, Calomel, Astringents, etc.—The author says he has tested the following plan of treatment in nearly all parts of the world. Turpentine epithems, or mustard poultices, to be applied to the abdomen frequently. Give ten grains each of calomel and prepared chalk, in treacle, every hour, along with half an ounce of the following mixture: Take of compound powder of chalk with opium, powdered acacia, and white sugar, each two drachms; sesquicarbonate of ammonia, one and a half drachm; cajeput oil, twenty minims; tincture of catechu, three drachms; with camphor mixture, eight ounces. When the stools become feculent, substitute the following until the purging stops. Take of acetate of lead, half a drachm; Battley's sedative solution of opium, fourteen minims to one drachm; oil of cinnamon, four minims; tincture of ginger, three drachms; an infusion of quassia, eight ounces. An ounce may be given every two hours.

Croton Oil.—Give one or two drops of croton oil on a small piece of sugar, and repeat it every two or three hours if the vomiting and purging continue. At the same time, apply hot bricks or bags of hot sand to the feet. The action of this remedy in this disease is not clear, but it certainly does not act as a purgative.

Sulphur.—In the ordinary diarrhœa preceding cholera, give a quarter of the following mixture every two or three hours: Twenty grains each of precipitated sulphur and sesquicarbonate of soda, two drachms of tincture of lavender and six ounces of water. Hot fluids and vegetables should be avoided. If the disease has advanced to vomiting give the remedy every quarter of an hour until it stays upon the stomach. If diarrhœa has preceded the treatment by some days, give five or ten minims of tincture of opium with each dose.

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Sulphuric Acid.—Dr. Fuller sums up his experience as to the value of sulphuric acid as follows: In Asiatic cholera, given in 3ss. doses of the dilute acid, he says it exercises a most favorable influence. In bilious diarrhœa he believes it to have little or no effect, but epidemic or autumnal diarrhœa and in more decided cholera diarrhœa he has never known it to fail. To render it a certain and effectual remedy the above dose should be given every twenty minutes.

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“Maxwell's Remedy.”—Give one scruple of sesquicarbonate of soda with three grains of opium, in a bolus, washed down with another scruple of soda, in a wineglassful of water, as hot as the patient can swallow it. Repeat it in the evening, with two grains of opium if necessary, and afterward give it in diminished doses.

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Decoction of Catechu, etc.—When the cholera broke out in the 37th regiment, at Colombo, in Ceylon, in 1847, after trial of various systems of treatment the most successful plan was found to be a strong decoction of catechu administered both by the mouth, combined with laudanum, and by enemata (to the amount of two washhandbasinfuls) conjoined with laudanum, turpentine, ether, ammonia, etc., according to the circumstances of the case, and the condition of the patient. The intense pain in the epigastrium, and the vomiting, are best relieved by applying hot spirits of turpentine to the stomach, and iced drinks, especially champagne. Excess of stimulants is fraught with great danger. The inhalation of ether was tried, but with questionable success. In some cases, however, a remarkable restoration of cuticular warmth took place, and increased fullness and force of pulse.

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Saline Injections.—As the saline constituents of the blood in cholera are greatly diminished, keep ready for solution the following powder: Chloride of sodium, three ounces; phosphate of soda, one ounce; carbonate of soda, one ounce and a half; sulphate of soda, half an ounce. This powder should be dissolved in water until the fluid has a specific gravity of 1030, and then heated to 98° F. It is then ready for injection into the blood.

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External Stimulants.—Mr. T. M. Greenhow recommends a plan of producing external stimulation, which, though not quite so formidable as the application of the actual cautery, and which he says is often resorted to in India, is yet a sufficiently formidable operation. It is a *brandy blister*; a linen rag dipped in brandy is applied to the abdomen and ignited, vesication may follow, though it does not invariably. If needful, repeat it; the part to which it is applied may be varied.

Part xxviii., p. 299.

Use of Chloric Ether in Cholera.—The following formula was particularly efficacious in arresting the premonitory diarrhoea, cramps, etc., of Asiatic cholera, and even in advanced stages, bordering on collapse:

R Ether. chlorici ʒij.; speciesi pro conf. arom. ʒss. mist.; cretæ comp. ad ʒvi. Ft. mistura. Take a fourth part every half hour till relieved.

Part xxx., p. 66

Vide Art. "Diarrhoea."

Treatment of Cholera by Yeast and Turpentine.—Do not arrest the purging; it is eliminatory. Give turpentine and yeast as follows: yeast a tablespoonful, oil of turpentine a teaspoonful, cold water or barley-water two teaspoonfuls. Give this dose every second, third, or fourth hour, according to circumstances.

Treatment of Cholera by Oxygen Gas.—Don't give opium. Give calomel freely, combined with camphor. Exhibit oxygen gas. This gas is easily given by shaking powdered chlorate of potash on a heated surface, and making the patient inhale the fumes. Or mix chlorate of potash with one-sixth its weight of black oxide of manganese, and throw the mixture on an iron shovel, heated to dull redness.

Part xxx., p. 262.

Treatment of Cholera by Eupatorium.—Make a strong decoction of the bitter bush, eupatorium, as follows: boil about two drachms in a pint of water, and give a small teacupful, cold, every half hour. It may be given alternately every half hour with some alkaline or saline powder.

Part xxx., p. 261.

Treatment of Cholera by Sulphuric Acid, Strychnia, etc.—The first stage may be generally relieved by the exhibition of a *stimulant emetic*, which, by evacuating the stomach, prevents any accumulation of irritative matter there, and by its revulsive power, produces a general alterative effect. This is to be followed by the following pills: chloride of mercury, five grains; ipecacuanha powder, half a grain; soap and opium pill, ten grains; divided into three pills.

This may be followed by an evacuant, consisting of rhubarb and magnesia, with compound cinnamon powder and water.

This, even in the early part of the second stage, will be sufficient sometimes to cure the patient; but if the serous fluid lost be considerable, or if the disease should run into its third stage, it is of importance to administer some astringent which can be depended upon, together with some medicine, so to uphold or stimulate the nervous power, as to prevent entire loss of control over the capillaries of the intestinal mucous membrane. In every case in the second stage, after the preliminary treatment, or immediately in the third stage, when from the copious action of the bowels, the preliminary treatment would be unnecessary—prescribe dilute sulphuric acid, half a fluid drachm; strychnia in acid phosphoric solution, one-sixteenth of a grain. This medicine to be taken as frequently as the urgency of the symptoms might render it necessary.

Part xxx., p. 263.

Treatment of.—The saline injection in the worst cases of collapse has the certain effect of *prolonging* life, if it does no more. In some cases it has proved the means of recovery. With each pint of water mix 64 grains of chloride of sodium, 64 grains of carbonate of soda, and 32 grains of

chlorate of potash—about five pints may be prepared, and to the five pints add half a grain of iodine. The whole five pints may be injected if necessary.

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Rouse the sunken innervation of the ganglionic nervous system, and prevent its deeper prostration. Valerianic acid exercises a directly stimulating action on the abdominal ganglia, as ammonia does on the nervous centres and the whole organism. Thus valerianate of ammonia is one of the best stimulants, as it rapidly enters the circulating fluid. It must be given as early as possible. From 3 to 6 scruples will generally subdue the disease. The following formula will answer: *R* Valerianat. ammon. ℥j.; aquæ destill. ℥ij.; syrup. simpl. ℥ss. Give a tablespoonful of this mixture every quarter of an hour, and when reaction sets in, give it seldomer; at the same time, rub the skin with hot flannels.

Part xxxi., p. 265-270.

Treatment of Cholera.—If in collapse, apply the hot wet sheets and hot turpentine frictions. During convalescence, mustard over the kidneys to promote the secretion of urine. Gallic acid, in five-grain doses, with one grain of calomel after every evacuation, is the staple remedy; for the severe vomiting, give the subnitrate of bismuth and carbonate of soda, or aromatic spirit of ammonia, sulphuric ether and laudanum. At the same time support by new milk, broths, etc.

Part xxxiii., p. 293.

Charcoal in Epidemics of Cholera.—Dr. Wilson recommends the administration of charcoal in cholera, both internally and in the form of an enema, prepared by rubbing up with the white of an egg—a tablespoonful of common levigated charcoal, and diffusing the same in eight or ten ounces of chicken broth.

He is convinced that, in all stages of the disease, it is a most beneficial adjuvant, and anterior to the asphyxial stage, and in that of reaction, most eminently curative.

Part xxxv., p. 26.

Premontory Symptom in Cholera.—The Academy of Sciences has received from Dr. Poznanski an important communication, in which it is stated, that during the prevalence of cholera, it frequently happens that the pulse is extremely low, and reduced to 45 or even 42 in persons apparently in perfect health. That this diminution, which often occurs weeks before the regular attack, may be considered a pathognomonic symptom of the approach of cholera. That those who have experienced the diminution in question had always escaped the disease whenever they have followed a regimen calculated to accelerate the circulation.

Part xxxvi., p. 96.

Arsenic in Cholera.—Dr. Black believes arsenic to have a specific action in cholera, from an experience of nearly two hundred cases, in none of which has it ever failed to produce a speedy and permanent cure. It may in very severe cases, where the cramps come on every few minutes, and the vomiting and purging are all but incessant, be given in doses of five drops of the liquor arsenicalis every fifteen minutes until the symptoms abate, and then be given every hour.

Part xxxvii., p. 248.

Choleric—Use of Sub-nitrate of Bismuth in.—The frequency with which gastro-intestinal disturbance precedes true cholera is well known, and the desirability of its suppression is evident; and to this end large

doses of bismuth succeed better than any other means. It is most applicable in the cases in which with the diarrhoea there are nausea, vomiting, gastralgia, colicky pains, borborygmi, and anorexia. The cases are innumerable in which the author has been enabled rapidly to relieve the symptoms, without any aid from opium, by giving eight or ten drams daily. The only inconvenience resulting is a certain amount of constipation. *Vide Art. "Diarrhoea."* *Part XI., p. 6.*

English Cholera.—For severe attacks of vomiting and purging, so very common in autumn, there is no remedy so effectual in checking the disorder as pills composed of creasote and opium. *Part XXXIV., p. 71.*

CHOLERA INFANTUM.

Use of Coffee in Infantile Cholera.—Dr. Pickford states, that for the great importance which now attaches to the treatment of cholera he feels it to be incumbent upon him to impart to others the experience which recent opportunities have afforded him of the effects of coffee in the cholera of infants.

In the case of an infant at the breast, to which he was called late, to whom the usual remedies had been administered unavailingly for two days, the exhibition of coffee was attended with complete success. The incessant vomiting and purging had produced extreme emaciation; the abdomen was distended; the pulse was frequent and small; there was great restlessness, and sleeping with the eyes half opened; convulsive motions of the eyes when awake. Carbonate of ammonia, with nourishing diet, and external stimulants, having been fruitlessly exhibited, Dr. Pickford determined to have recourse to coffee, which he knew to have been recommended as a stimulating tonic, by Dr. Dewees. He began with a small dose, a scruple, infused in two ounces of water, with one ounce of syrup, giving a large spoonful every hour. The effect was surprising; the vomiting was arrested; the evacuations became more consistent, improved in color, and less frequent. The amendment progressed so rapidly, that by the tenth day the child was discharged as cured.

Part XIX., p. 94.

CHOKING.

"Ready Method" in Cases of Choking.—Dr. Marshall Hall advises: In cases of sudden choking, as from a morsel of food, place the patient, generally a child, between your knees, one knee (the right) pressing firmly on the stomach, and the other on the back; then place one hand on the back part of the thorax, and give a firm blow with the other on the sternum, the morsel will sometimes be expelled with force to a considerable distance. If in the midst of the asphyxia the excito-motor power fails, and the larynx is no longer spasmodically closed, employ the "Ready Method" to sustain life until a bougie can be made to push the morsel of

food lower down in the pharynx or œsophagus. A firm scroll of cotton or linen, if carefully made and greased, or a thin bent tallow candle, might answer this purpose. *Part xxxv., p. 49.*

CHORDEE.

Treatment of Chordee.—The following prescription is recommended by Mr. Gillott in a communication in the "Lancet" for December 20th, 1845, for the cure of gonorrhœal rheumatism: colchicum wine, two drachms; sulphate of magnesia, one drachm; carbonate of magnesia, one drachm; iodide of potass, half a drachm; water, five ounces and a half. One teaspoonful to be taken every fourth hour. Another correspondent of the "Lancet" recommends a combination of iodide of potass and decoct. sarsæ comp.

Mr. O'Connor recommends from twenty-five to fifty minims of vin sem. colchici, for several successive nights, to relieve chordee.

Part xliii., p. 295.

Lupulin.—Recommended in cases of chordee, in doses of five or ten grains, at bedtime—repeated pro re natâ.

Part xxi., p. 269.

Chordee.—To relieve this condition no remedy is so efficacious as camphor. It may be given in the form of the spirit of camphor, in doses of ʒj. in a small quantity of water. The best plan is for a teaspoonful to be taken at bedtime; and every time the patient awakes with the chordee, let him arise at once and repeat the dose.

Part xxiv., p. 271.

Anaphrodisiac Properties of Bromide of Potassium.—Thielman recommends this remedy as an excellent anaphrodisiac in satyriasis, in the frequent and painful erections during gonorrhœa, in spermatorrhœa, and in nymphomania. He administers it in doses of from two to three grains every two or three hours; and, at the same time, enjoins a mixed vegetable and milk diet, and forbids all acid substances.

Part xlii., p. 222.

CHOREA.

Electricity in Chorea.—Dr. Golding Bird gives a list of 36 cases in nearly all of which it was remarkably successful; the only remedy combined in the treatment being purgatives. In most of these cases other remedial treatment had been previously adopted in the hospital, and were sent to the *electrical ward* as a last resource. In every case he "confined the treatment to *sparks* taken in the course of the spinal column every alternate day for about five minutes each time, or until the papular eruption made its appearance." With respect to passing the shocks along the affected limbs in chorea, it is particularly necessary to notice Dr. Bird's words. He says:

I have never seen any good effect to result, in cases of chorea, from the transmission of electric *shocks* along the affected limbs; on the contrary, in every instance the involuntary movements have been increased, often to

an alarming extent; and if employed when the patient was convalescent, it has invariably aggravated every symptom, and often rendered the patient as bad as when first admitted under treatment. *Part iii., p. 2.*

Purgatives and Tonics.—In relation to the treatment of chorea, Mr. Wardleworth says:

The indications of cure are, I think, 1st, To unload the bowels, if a torpid condition of them exist; and, 2dly, To restore the tone of the stomach and intestines. The purgative formula which I have found the most efficacious, is the following:

R Ext. elaterii gr. j.; pulv. jalapæ, gr. xxxvj.; pulv. zingib. gr. rrr
Misce et divide in chart. xij. capt. j. quarta quaque hora donec alvus soluta fuerit.

After the bowels have been fully acted upon, should the disease still continue, I then prescribe that important therapeutic agent, the ammoniated tartrate of iron. Its pleasant taste, and perfect solubility in water, render it exceedingly agreeable, even to the most fastidious.

I commence by giving three grains three times a day (in quovis vehiculo), the dose to be gradually increased to five grains, which will generally be found sufficient to subdue the disease, care being taken at the same time to keep up a free action of the bowels, combined with a light yet nutritive diet. Free exercise in the open air, after the disease appears to decline, is essential to the patient's perfect recovery.

No doubt there are complicated cases of the disease, which render other treatment advisable, and which approach to epilepsy, so decidedly marked, as to leave no doubt of the propriety of having recourse to the antispasmodic treatment. Though this is the case, I have not seen one instance where I thought it necessary to adopt the starving plan of cure. Nausea, blisters, nor any other external application have I prescribed, since I adopted the use of the ammoniated tartrate of iron in chorea. *Part iv., p. 35.*

Treatment of Choreæ.—Dr. Babington says:

He has not found any one remedy so superior in efficiency to the rest, as to induce him to abandon all others in its favor. On the contrary, the most powerful will sometimes disappoint our expectations; and we are then obliged to try one after another; and in the end, perhaps, remain uncertain, should the patient do well, whether the recovery is to be attributed to the means employed, or to the power of nature herself. Dr. Babington, therefore, treats the cases *rationaly*.

When there is evidence of congestion in the head, marked by giddiness and headache, occurring in subjects of a full habit and florid countenance, the treatment should be commenced with moderate depletion.

Attention to the state of the bowels is, of course, in all cases, indispensable, even though the general treatment should be of a tonic character.

Where worms, and especially tænia, cause the irritation, turpentine, and other anthelmintics will prove most successful; and these cases also will swell the list of those who will be benefited by brisk and repeated purgatives.

Where there is reason to believe that the disease is connected with the state of the uterus, occurring about the period when the catamenia should appear, and combined with symptoms of hysteria, those remedies will naturally suggest themselves which have a special power in causing this discharge, in obviating its irregularity, and in correcting its unhealthy character. The state of the teeth should be looked to about

the period of the second dentition; and even on the cutting of the dentes sapientie, as a probable source of irritation—and the gums should be lanced, or the decayed roots of the first set removed, according to circumstances.

Where the disease has arisen from a metastasis of rheumatism to the fibrous structure of the theca of the cord, it ought to be treated in the same way as pericarditis—by depletion, general or local, antiphlogistics, and the employment of mercury, carried to slight salivation.

The following are Dr. Babington's opinions on the subject and comparative value of tonics:

"Various vegetable tonics have had their advocates; but bark and sulphate of quinine may be taken to represent them all.

"The most severe case I ever saw recover, was cured in a few days, by divided doses of port wine, in which enough of sliced rhubarb was steeped to render it gently aperient.

"The metallic salts and oxides have, however, of late years been generally preferred. Sesqui-oxide and sulphate of iron, sulphate of copper, oxide and sulphate of zinc, nitrate of silver, and arsenite of potassa, have all been tried, and found, in different hands, to succeed. The testimonies in favor of sesqui-oxide of iron in large doses, and of sulphate of zinc, are perhaps the strongest. On the latter remedy I have generally relied.

"Sulphate of zinc, however, will not be borne by all stomachs, even in small doses. In such cases, I generally have recourse to the liquor potassæ arsenitis, cautiously increased in its dose from three to twelve or fifteen minims, according to the age and strength of the patient, and other concomitant circumstances. I believe this the most powerful remedy of them all—at least, I have found it so, in several obstinate cases; but I am deterred from employing it where other remedies will succeed, from the sickness and griping pains which it is apt to cause, and from some fear that the constitution may be permanently injured by its continued employment.

"As an external remedy, the shower-bath may be very often advantageously used, in conjunction with internal means; and I have even tested its efficacy with success, when used alone. In St. Petersburg, I am informed by a Russian physician, a new practice has, within the last year, been adopted with eminent success, in obstinate cases of chorea. The patient is placed in a bath as hot as he can bear it; kept there for half an hour; and, when thus thrown into the most profuse perspiration, is suddenly plunged into cold water. I have not ventured to try this method of producing a sudden shock; or rather, I should say, that opportunity has been wanting, since I have been made acquainted with it; but in an extreme case, and when other remedies have failed, I should, on the testimony I have received in its favor, not hesitate to employ it." *Part v., p. 40.*

Extract of Indian Hemp.—Case cited of chorea affecting the body with rigid spasms, relieved by half grain doses of extract of Indian hemp three times a day. Within ten days a cure was effected without the aid of other medicines. *Part vi., p. 28.*

Treatment of Chorea.—Dr. Todd believes the movements of chorea should not be forcibly restrained, while at the same time, provision should

be made against the possibility of the patient being injured in the violence of the movements.

Free ventilation, cleanliness, with frictions of the skin, warm clothing, a wholesome and nutritious diet, including animal food, porter or wine in moderate quantities, when there is much debility, or when the movements are constant and exhausting, are recommended as valuable auxiliaries.

Attention is directed to the condition of the bowels. Calomel and jalap in combination, or, if there are worms in the intestinal canal, castor oil and turpentine are suggested. Purgation should not be pushed to excess. After the secretions of the bowels assume a healthy appearance, tonics are advised, especially the cold shower bath. Of the medicinal tonics, some one of the metallic salts, especially of the preparations of iron, may be advantageously combined with sulphate of quinine.

Dr. Todd prefers the sulphate of iron in large doses, and in reference to arsenic, says, that if he can cure his patients with iron or zinc, he would rather not employ arsenic.

Opiates and the whole class of sedatives are here discountenanced and considered liable to aggravate the disease although they may have procured sleep, leaving a disturbed state of the brain. Antiphlogistics are also considered inadmissible. *Part viii. p. 62.*

Iodide of Potassium.—The following combination of iodide of potassium is recommended in certain cases of chorea, without fever or furred tongue.

R Iodide of potassium, five grains; sesquicarbonate of soda, ten grains; camphor julep, one and a half fluid ounce. M.

This dose to be taken thrice daily.

Dr. Oke has occasionally given four or five grains of blue pill every other night during the exhibition of the iodide, and thinks it sometimes forward its success. *Part ix., p. 62.*

Treatment of Chorea.—With regard to the treatment of chorea in children, it usually yields to purgatives and tonics; if the disease is very recent, purgatives will often succeed in curing the disease; but subsequently the addition of various tonics is required. Purgatives remove the irritation of the intestinal canal which tends to produce the disease. Derivants are useful in preventing the local determination of blood, which is connected with most cases of excitement of the nervous centres, but the remedies that answer most effectually in most instances are tonics. Sulphate of zinc and sesqui-oxide of iron, are the most useful; the former being adapted chiefly to the more plethoric subjects. In children who are active, and who exhibit a tendency to inflammation, without any weakness of constitution, it may be given in doses of ten grains, three times a day, gradually increased.

The more effectual tonics are the more soluble ones; the sulphate of iron is a very good one, but the iodide of iron answers best; it pervades the system more rapidly than any other, and keeps the secretions more free. It may be given in doses of one grain three times a day, increased to four or five grains, taking care at the same time that the bowels are open. In obstinate cases, where there is functional disorder of the spine, and the membrane of the spinal cord, counter irritation by blisters along the costal spine, or tartar emetic ointment, or croton oil, or some other applications of that kind, are useful. In these cases, nitrate of silver has been found of service. If there are any symptoms of fullness, or any local

pain or tenderness in the region of the spine, local blood-letting should be practised; and if the disease has originated from rheumatism, it is proper to give colchicum and iodide of potassium internally, at the same time that counter-irritants are used. *Part xii., p. 44.*

Strychnia in Chorea.—Some years since, Dr. Ross was induced to try this remedy in some cases which had resisted other treatment.

"The first occasion on which I made trial of the remedy in this disease," says he, "was in the case of a delicate girl of twelve or thirteen years of age, who came under my care as a hospital patient, with many of the eccentric symptoms of this singular disease most distinctly marked. From having been very expert with her needle, she was grown incapable of using it, and her attempts to thread it were almost ludicrous. I prescribed for her the eighth or tenth of a grain of the alkaloid, to be taken twice a day. On the second or third day of the treatment, through a mistake of the nurse, she had an over-dose of the medicine, which produced more violent effects than I intended—viz., convulsive twitches, which, however quickly subsided, on the medicine being intermitted, and with them all symptoms of the disease. In a day or two after this I saw her thread a fine needle with a hand perfectly steady, and she was dismissed cured at the end of a week. I saw her more than a year afterward; she was quite well, much improved in appearance, considerably grown, and had no return of the chorea. *Part xii., p. 45.*

Treatment of Chorea, with coëxistent Heart-Disease.—Dr. Chambers does not find it necessary to modify the treatment of chorea, in consequence of its complication with heart-disease; provided the latter be not the more acute affection of the two. He finds gradually-increased doses of sulphate of zinc serviceable. By beginning with half a grain, and increasing it by a grain a day, he has seen fifty-two grains taken daily, not merely with tolerance, but with advantage. *Part xv., p. 77.*

Use of Electricity in Chorea.—Employ electricity, by drawing sparks from the spine. Do not transmit shocks through the limbs; but in girls, when the chorea seems to depend on amenorrhœa, after relieving the anæmia, pass a few shocks through the uterus. Electricity, used in this way, comes next to, if not before sulphate of zinc, as a remedy in these cases. *Part xvi., p. 102.*

Chorea associated with Pregnancy.—Chorea and other convulsive diseases are often associated with pregnancy, and are rarely removed until delivery takes place. In the treatment, avoid heroic measures, attend to the secretions, and endeavor to restore the tone of the nervous system by giving sulphate of zinc, one to five grains thrice a day, with or without ext. gentian, gr. iij.; or give ferri sulph. gr. j.; quin. sulph. gr. j.; pulv. capsici gr. j.; pil. aloë, co. gr. j.; ter die; with the addition, occasionally, of pulv. valerianæ, gr. xij., or the valerianate of zinc. *Part xvi., p. 291.*

Tartar Emetic in Chorea.—Mr. Corfe relates the case of a woman, æt. twenty-eight, with severe chorea, who was under the care of Dr. Thompson. He says:

The violence of the symptoms rapidly subsided under the steady and repeated exhibition of tartar emetic, in large doses. The doctor commenced with half a grain every hour, for eight or ten successive doses, and then he continued it, in the same quantity, every four, and subsequently every six

hours, when she obtained tranquil and refreshing sleep, and gradually improved under this treatment alone, and left the hospital perfectly well.

Part xvii., p. 33.

Chorea.—Do not be misled by the urgency of the symptoms into the adoption of depressing treatment. But after correcting the secretion by the use of purgatives, let the cold bath be freely and frequently used, and give nourishing diet, with chalybeates, quinine, and metallic tonics. If after the cessation of the spasmodic movements, paralysis or debility of the muscles remains, apply galvanism.

Part xix., p. 6.

Treatment of Chorea by Prussiate of Iron.—Give prussiate of iron (ferro-sesquicyanide of iron?) in the following manner: Take, of prussiate of iron, grs. xv.; extract of valerian, grs. xlv.; make it into twenty-four pills. Give one pill three times a day, to be followed by a wineglassful of infusion of valerian.

Part xvi., p. 24.

Sulphate of Zinc in Chorea.—The sulphate of zinc has been extensively used as a remedy for chorea, in Guy's Hospital, and it is stated with remarkable success. The dose has been increased even up to thirty-six grains, three times a day. "Zinc has a similar peculiar influence on the nervous tissue as iron has upon the blood."

Part xxiii., p. 13.

Treatment of Chorea by Frictions with Chloroform.—Mr. Cassier has published cases of chorea cured by the topical application of chloroform.

Among others was that of a child seven years of age, in whom the disease was caused by fright. A liniment composed of equal parts of chloroform and oil of sweet almonds was rubbed, night and morning, along the course of the spine. From its first employment the violence of the muscular movements was moderated, and in six days the patient was cured.

Part xxiii., p. 7.

Chorea.—Gymnastic exercises have been recently employed in the Hôpital des Enfants, Paris, with the most marked success, commencing with the most simple movements. At the twentieth lesson they were exercised in wrestling, and afterward in running. A marked improvement soon became manifested, their countenance becoming animated, their flesh firm, their voices stronger, their appetites keener and more regular; glandular swellings, which had resisted all treatment, were resolved, and fistulous sores, that had been open for years, closed up.

* * * * *

Another valuable method of treating chorea is by means of the sulphurous baths, as devised by M. Baudelocque, fifty-eight rapid and decisive cures having been obtained in 65 cases. Thirty drachms of sulphuret of potash are added to each bath, which is applied at least one hour daily at a temperature of 91°. Where the cure is retarded, it ordinarily depends on the patient's powers being lowered by other remedies, or insufficient diet; upon irritation of the skin, induced by the bath, or upon acute irritation of the internal serous membranes—circumstances contra-indicating the baths while they continue.

Part xxv., p. 15.

Chloroform in Chorea.—The inhalation of chloroform in the ordinary manner on a pocket handkerchief in a case of chorea, under Sir Henry Marsh, was followed by the most marked relief in the symptoms.

Part xxvi., p. 34.

Treatment of Chorea.—The indications in this disease are to improve the state of the blood, amend general nutrition, calm the nervous system, and infuse tone into the muscular. If any irritation exists it must be removed. The most frequent source, perhaps, is from ascarides in the rectum, and these may be removed by an injection of a strong solution of salt in water, or an infusion of quassia into the rectum. The disease very frequently yields to attention to diet, and the cold affusion employed two or three times a day. Of the tonics, those of the metallic kind are the best, especially iron and zinc, or quinine may be employed, or some form of bark. Sometimes the muscles become slightly paralyzed; the best remedy for this is the careful employment of galvanism; a gentle and slowly interrupted current may be transmitted through the paralyzed part from a quarter of an hour to twenty minutes at a time. Friction, with a rough towel or a flesh brush may be also employed. *Part xxvi., p. 35.*

Use of Ammonio-Sulphate of Copper in Chorea.—Dr. Mercé regards the ammonio-sulphate of copper as a sovereign remedy in chorea. Out of 177 cases treated at Pesth, 170 had been restored by this drug to perfect health in an average time of 22 days. The prescription he employs is the following: Aq. menth. pip. ℥iv.; ammonio-sulph. cupri, gr. viij.; tinct. opii, gtt. viij.-xij.; syr. simplicis, ℥ss. A teaspoonful may be commenced with, four or six times a day, gradually increasing the dose. A child from nine to fourteen years old might take a tablespoonful four or five times a day. If sickness is produced, cease for a day, then recommence in smaller doses. If chlorosis or anemia is conjoined with the disease, then add some preparation of iron. *Part xxvi., p. 39.*

Treatment of.—In children, under fourteen years of age, give from half a grain to a grain, three times a day, of the ammonio-sulphate of copper. It succeeded where the sulphate of zinc and the sesquichloride of iron had completely failed. It is not a novel remedy, but it is much neglected. *Part xxvii., p. 248.*

Chorea.—In a most severe case of this disease (the patient being a girl aged sixteen), in which the symptoms were particularly aggravated, the following treatment proved very successful. She was ordered to inhale chloroform, and to have a suppository containing two grains of opium, at once, and a draught with four grains of camphor and some chloric ether every two hours. Afterward eight grains of quinine were ordered to be given as a suppository every hour for six times. The next day she was decidedly quieter, and the draughts and suppositories were given at intervals of four hours. From this time she rapidly improved, and in three weeks was discharged. *Part xxviii., p. 68.*

Hysterical Chorea treated by the Syrup of the Iodide of Zinc.—In this case, the nervous derangement, depending on a uterine cause, took all the appearance of a case of chorea. The patient was sixteen years old, of a peculiar masculine appearance. The catamenia had appeared about three months, and the chronic symptoms about five days before admission.

On her admission, the patient presented a very excited condition; her arms were in constant motion, also the legs to a certain extent; the muscles of the face were likewise very much affected, contorting the face in a hideous manner. The tongue was remarkably enlarged, and the head

very hot. Dr. Barlow thought that there was a mixture of hysteria and chorea in the case. The bowels being confined, colocynth and calomel were ordered. The patient afterward rapidly recovered under the use of 5ss. doses of the sirup of the iodide of zinc, and calomel night and morning.

Part xxix., p. 61.

Chorea.—Begin with sulphate of zinc in small doses (gr. j. to gr. 10) and gradually increase the dose to five or eight grains. Sometimes liquor arsenicalis is very efficacious: give three minims to a child, and five or six minims to an adult in a bitter infusion three times a day.

Part xxx., p. 42.

Chorea treated by the Carbonate of Iron.—Cases must have come under the notice of all physicians in which, after iron had failed, zinc succeeded, and in which, after perhaps both of these had been tried in vain, the ammonia-sulphate of copper, some preparation of arsenic, or perhaps the addition of valerian to the zinc, at once arrested the disease. Our art is fortunate enough to possess at least half a dozen mineral preparations of proved specific power against chorea, but as yet few, if any, trustworthy rules have been established for our guidance in preferring one to the other.

In our present ignorance, however, we must be content to be guided by the knowledge obtained during the progress of the treatment, and to ring changes on the remedies until the right one is found. Perhaps, however, in virtue of their blood-improving qualities, the preparations of iron have a claim to be tried before most of the others, and of those preparations the saccharine carbonate is probably the best for the purpose.

Part xxxi., p. 304.

Chorea.—*Vide* Selections from Favorite Prescriptions, Art. "Medicines."

Treatment of Chorea by Blisters.—Blisters have often been beneficial when repeatedly applied to the extremities of the side most affected. If the chorea be intense or chronic, a blister may be applied to the back of the neck.

Part xxxiii., p. 70.

Chorea.—In cases where the usual antichoreic medicines fail, you may try splints; in some cases they act so favorably that the patient is well in the course of a few days.

Part xxxv., p. 32.

Chorea.—In cases of chorea, if complicated with struma, administer the iodide of zinc; if no indications of this disease exist, the sulphate may be used.

Part xxxvi., p. 44.

Chorea.—Dr. Addison, of Guy's Hospital, advises, whenever we see a case of chorea in a young person, to always suspect that it has had its origin in rheumatism. Disease of the heart is very frequently found in cases of this nature. Most reliance is to be placed on sulphate or oxide of zinc in the treatment of this disease.

Part xxxvii., p. 50.

Arsenic in Chorea.—Dr. Rice states that he has of late treated severe cases of chorea with great success by means of arsenic, the treatment occupying only from two to six weeks. He says: "I am no believer in specifics, but I think arsenic is as sure to cure chorea as bark is to cure

ague; the remedy must be watched and used with caution, and then it is entirely safe." He employs Fowler's solution, giving other medicines as adjuvants as the case requires them. *Part xxxvii., p. 311.*

CICATRICES.

Treatment of Cicatrices of the Neck after Burns.—Mr. James, of Exeter, brought before the meeting of the Provincial Medical Association at Leeds several cases in which the severe contraction after burns had been considerably relieved by a regular system of extension. Dr. Mutter, of Philadelphia, relates several remarkable cases in which the old cicatrices were entirely dissected out, and a fresh and healthy portion of the neighboring skin introduced in their place. But even this, although a bold, and in many cases a successful operation, will sometimes fail.

These remarks more especially apply to cicatrices of the neck. Mr. James's treatment consists in dissecting the hardened cicatrix from the neighboring parts and covering the large exposed surface with moistened lint, and bread and water poultices confined by a pasteboard collar, until suppuration is freely established. He then applies what he calls a screw-collar, by means of which he can elevate the chin and keep it at any particular degree of elevation till a fresh cicatrix has formed.

Part viii., p. 119.

Contractile Cicatrix.—To close preternatural openings which have lost all tendency to contract naturally, if the openings are small, with callous edges, apply the nitrate of silver. If they are large, pare the edges, and bring them together by suture; and if a small opening should still remain, then the application of caustic may complete the cure.

Part xxii., p. 347.

Cicatrices from Burns.—Professor Ferguson, in operating upon cicatrices after burns, after dividing the bands and dissecting them back, employs extension of the parts. In a case of the kind lately under his care, this mode of treating this unpleasant deformity was attended with complete success.

Part xxvi., p. 294.

Cicatrices from Burns.—Make a number of short transverse incisions in the cicatrized tissues; these gape much when made. The wounds are dressed with narrow pieces of strapping, so as to approximate the end of cut to each other, not the sides—and lengthen out the old cicatrix as much as possible.

Part xxxvi., p. 187.

CLUB-FOOT.

Observations on Talipes.—Mr. Braid, of Manchester, affirms that the cause of malpositions constituting talipes is evidently the result of spasmodic paralytic seizures, of which there is ocular demonstration in the non-congenital cases.

When a tendon has been divided, and the two ends separated from each other, he has ascertained that these two ends reunite by fresh tendon, or a substance very like it; and by this means a tendon may be elongated almost to any reasonable extent. He differs from most authors when he states that the best way is to divide all or most of the tendons which are implicated in the contraction; and in the course of four or five days the foot may be brought into its natural position and direction, without the trouble and pain of continuing the extension for the great length of time which often follows the simple division of the tendo Achillis. It will generally be found in a case of pure talipes equinus, with rigid contraction, that not only are the tendo Achillis and plantaris contracted, but also the flexor longus pollicis pedis, and the flexor longus communis, tibialis posticus, and peroneus longus and brevis. Mr. Braid would therefore, divide the whole of them at the same operation, or at least those which he found contracted; and his extensive experience warrants him in strongly recommending this mode of proceeding instead of dividing the tendo Achillis alone, and trusting to future long extension to complete the reinstatement of the foot. It seems but reasonable that if other tendons are found proportionably contracted, they should be divided as well as the tendo Achillis, especially as the operation is so very simple, and fresh tendon will almost invariably be found to unite the dissected portions.

No doubt, in many cases Mr. Braid's practice is admirable, for it must be remembered that the antagonistic muscles are in a weak and almost paralyzed state, and can, therefore, offer but little resistance when the lately extended muscles are again allowed to have play: the consequence will be that the club-foot will either not be completely cured, or the cure will be very tedious. After thus dividing all the contracted tendons, extension is to be commenced in two days, and in four or five days the deformity will generally be cured. In a case of varus Mr. Braid divides the tendo Achillis, tibialis anticus, tibialis posticus, flexor longus pollicis pedis, and flexor longus communis, and abductor pollicis, if required; and if there should be much contraction of the sole of the foot, he even divides the plantar fascia as well as the short flexors. But there may be other kinds of talipes, which are owing, not so much to contraction of certain muscles, but to paralysis or weakness of the antagonistic muscles; and in these cases Mr. Braid seems to be the first who has excised a portion of such paralyzed or weak tendons for the sake of uniting them again, and thus making them shorter. This has completely succeeded in many cases. It is necessary, however, not to cut out too much, which would produce rigid contraction, nor too little to excite the tone and contractility necessary.

Part iv., p. 80.

Varieties and Surgical Treatment of.—Dr. Guérin, of Paris, states that the special forms of pes equinus are the product of retraction of the gastrocnemii, solei, and flexors of the toes; those of varus of that of the anterior and posterior tibialis; those of valgus of the lateral and anterior peronei; those of talus of the anterior tibialis, the long extensor of the toes, and the anterior peroneus, with complete or incomplete paralysis of the gastrocnemii and solei.

The surgical treatment of congenital club-foot ought to comprehend the section of the tendons of those muscles, whose retraction causes the patho-

logical form of the foot; when the heel is elevated, the tendon Achilles; when the foot is turned on its external edge, the tibialis anticus; when on its internal, the anterior peroneus and the whole or part of the extensor of the toes; for forced adduction of the foot, the tibialis posticus; for abduction, the peronei laterales; for curvature of its internal edge, the adductor of the great toe; for extension or permanent flexion of the toes, the section of the tendons of the corresponding muscles; and, finally, the simultaneous section of the tendons of those muscles, whose simultaneousness of retraction causes the different combinations of form which club-foot presents.

Part iv., p. 112.

Talipes Equinus.—Mechanical extension should be commenced on the third day after the division of the tendon; the foot must be bandaged and placed in a Scarpa's shoe, or that modified by Mr. Adams; the rate of extension in a healthy infant should be such as to obtain the full length required in a fortnight, if practicable; in adults and paralytic limbs it will require a longer time. Our object must be rather to regulate the length of new tendon than to elongate or stretch the new material; care must be taken to carry the foot beyond the right angle with the leg, according to age and comparison with the healthy foot. During the latter period of treatment, passive exercise must be employed to prevent stiffness of the joint. When much resistance has to be overcome, most good is done by constant and regular, rather than intermitting mechanical extension. In ordinary cases, flexion and extension may be used for a quarter of an hour or more each day.

Part xxxiii., p. 158.

Tenotomy.—In severe cases the operation must be divided into two stages, the second operation being performed after a few months. The inversion of the anterior portion of the foot must be overcome, and the case converted into equinus before dividing the tendo Achilles. At the first operation the tendons of the tibialis anticus, tibialis posticus, and flexor longus digitorum may be divided. If the tendo Achilles be also divided, too many objects are to be attained, and there is imperfect eversion; it is, therefore, now an established rule that the tendo Achilles should be the last divided. The plantar fascia may be divided at either sitting, but if much contracted, it should be done at a separate stage in the treatment. In performing the operation, introduce the knife obliquely behind the tendon and close to it, with the flat surface parallel with the tendon, then depress the handle and cut from within outwards, as cleanly and neatly as possible, so as not to disturb the surrounding parts, then cover the wound with a compress of lint and a little plaster; this will exclude the atmosphere and prevent extravasation and inflammation. The foot may then be allowed to return to its deformed position. With respect to the kind of knife used, the best is the strong spear-pointed tenotome, with a cutting edge slightly curved.

Part xxxv., p. 76.

Talipes Varus.—The theory of stretching the new material formed in the reparation of tendon, after division by the knife, is altogether erroneous. The new material does not admit of being stretched like india-rubber, and then, unlike this material, of being retained at any required length. Our object must, therefore, be to regulate the length of the new material during its formation. In slight infantine cases, divide all the tendons necessary at one operation, and after the foot has been retained in its

deformed position by a bandage and splint for three days, apply Scarpa's shoe, and in the course of two or three weeks bring the foot into its natural position. In *severe* cases the treatment, both operative and mechanical, must be divided into two stages; the first to overcome the inversion of the anterior part of the foot, and thus convert the case into one of equinus—the second stage to cure this equinus. The first stage is accomplished by dividing the tendons which invert the foot, and then the cutaneous punctures being healed by the application of a bandage and splint to the outer side of the leg and foot, gradually to produce eversion. The second stage is accomplished by division of the tendo Achillis, and then by the use of Scarpa's shoe, to produce flexion at the ankle joint. If at the end of the fourth or fifth week the tendo Achillis should still appear to be strong, the shoe should be worn only at night, and the frequent and regular employment of passive motion is more to be relied on than any mechanical aid.

In all *relapsed cases* of talipes varus, in which the deformity can be removed, the relapse is owing to some defect in the after-treatment. Among defects in the primary treatment are, omission of the division of the posterior tibial tendon, division of the tendo Achillis at beginning instead of at the end of the operative treatment. Among defects in the after-treatment are omitting the use of such retentive mechanical means as the case may require, and of active and passive muscular exercise, in the right direction. The earlier the treatment is commenced the less the tendency to relapse. In very rare cases there is a congenital defect in muscular development. Here some form of retentive apparatus must be worn by the patient during the remainder of life. In the treatment of these cases, where any marked degree of inversion remains, and is accompanied with rigidity of the foot, treat the case throughout as if nothing had been done. In most cases division of the tendo Achillis, or of the and the plantar fascia, will suffice.

Part xxxvi., p. 154

Unnecessary Orthopedic Operations.—Operations are resorted to frequently in the cure of talipes varus. As a consequence, though doubtless the cure is more speedy, we have various permanent ill effects which might have been avoided. Thus, the fleshy part of the calf is too small and too high up in the leg from contraction of the muscle, and the free motion of the ankle-joint is impeded by the prolonged rest which has been necessary to the success of the operation. Where, then, the foot can be abducted by the hand of the surgeon, and whilst so abducted can be bent to a right angle, by the use of gentle violence, a cure may be effected without tenotomy, before the usual age at which sound children attempt to walk, and even if an operation be performed, mechanical treatment cannot be dispensed with before this age. When the surgeon cannot perform this movement with the child's foot, and the imperfectly developed os calcis seems tied to the back of the tibia and fibula by deep ligaments, and a deep depression exists between the great toe and heel on the inner side of the foot, the case cannot be cured without operation. The secret of curing the case without operation consists in applying the bandage and splints (which may be made of gutta serena, molded leather, or tin) so as not to distress the infant. They should be removed at least three times a day, and manipulation practised, and reapplied more with a view of preventing relapse into a wrong position than of forcing the lapsed part into

a better one; and during this treatment recollect first to obtain eversion of the point of the foot before attempting depression of the heel. Although a case may be apparently cured, yet in the course of time deformity may again return, owing to the muscles and other textures on the originally contracted side of the limb not keeping pace in growth with the other. Such cases can generally be restored by due pains in efficient instrumental and manipulative treatment.

Part xxxvi., p. 161.

CLYSTERS.

Use of Clysters.—Dr. Hall has long been in the habit of ordering large purgative clysters, to evacuate the whole of the large intestines, as far as the ileo-cæcal valve. In consequence of some eminent practitioners in Glasgow doubting whether or not clysters could be made to pass through the sigmoid flexure of the colon, Dr. Hall commenced a series of experiments on dead bodies to decide this important practical question.

In the first experiment on the dead body, by Dr. Hall threw into the bowel five or six pints of thin gruel, and on examination it was found to have even passed the ileo-cæcal valve. As far as the operation could go for anything on the dead body, this was decisive. The next experiment was upon the living subject, a man suffering from stricture of the rectum; the pipe was passed through the stricture, and an injection of five pints of gruel thrown up, and on percussion afterward in the region of the colon, a dull sound was elicited; before injecting this it was clear. The third experiment was performed on a stout man. The abdomen was carefully percussed, and the whole of the colon gave a clear sound; the patient was placed on his left side, and three pints of injection thrown up into the bowel by Read's enema syringe, and now there was dullness on percussion as far as the point where the transverse joins the descending colon. The man was then placed on his right side, and three pints more injected into the bowels. In a few minutes the man went to the water closet twice, and after the second time, percussion indicated the presence of fluid, as far as the sigmoid flexure of the colon. "This case was marked by an important practical point, viz.; that the best position of the patient for the operation is lying upon the right side, not upon the left, as in the former cases, and with the pelvis considerably raised." In the fifth experiment, seven pints of oleaginous gruel were injected into the bowels, and from percussion it was evident that the large bowels were quite filled, and probably some part of the small also. In another experiment on a dead body, in which eight pints of water were used, the fluid passed through all the intestines and even partially filled the stomach.

Dr. Marshall Hall says, if we wish to wash out the colon, we should employ Read's syringe, and that three pints of warm water will be sufficient—his rule for the administration being, "as slow as possible, and as long as possible." "In this manner," says he, "the intestine is filled before it is distended, its peristaltic action is at length excited by the stimulus of that distention, and it contracts energetically in a mass, which, by its bulk and rapid flow, carries away the feculent matters mechanically."

Dr. Hall prefers purgative clysters, prepared with an admixture of common salt and butter, with well-boiled oat-meal gruel. Attention is directed to the use of ox-gall in the preparation of enemata. *Part xii., p. 41.*

Nutritive Enemata.—Perhaps this mode of conveying nutrition into the system in cases in which the patient either cannot or will not swallow, is not sufficiently resorted to. Mr. Ormerod gives the following case.

A man of about twenty years of age was admitted with his pharynx opened and the glottis exposed. He was unable to articulate, and vomited frequently through the wound, for an hour and a half, the fluid mixed with blood. On the second day he had an enema of milk. From the 3d to the 41st day he took daily, in three enemata collectively, two pints of broth made from rather more than one pound of beef. His hunger was always appeased by the enemata. When his bowels were confined some salt was added, which was sufficient to open them. Once some wine was added to the injection.

On the 41st day the wound was nearly healed, and the man looked well, and in tolerably good condition. He could, however, only speak in a whisper. *Part xv., p. 46.*

COLCHICUM.

Colchicum—Uses of.—This is a plant of no small importance. In its properties it is partly diuretic, partly cathartic. It acts very decidedly on the liver, removing torpid states of that organ, and causing yellow or even dark stools to succeed grey or white ones.

In France, colchicum is ranked among diuretics, and undoubtedly it promotes the action of the kidneys, and by facilitating the secretion of uric acid, is proper in cases of gouty or rheumatic diathesis, and obviously controls the paroxysms of arthritis and rheumatism. In what manner does colchicum act on the kidney? Not directly, we apprehend, but indirectly by promoting the action of the liver. We have elsewhere called attention to a fact of some importance, that often when the liver does not secrete duly, and when, consequently, the stools are pale and scanty, neither does the kidney act sufficiently, the urine being high-colored or turbid, and of diminished quantity—in such circumstances, anything that acts on the liver, as, for example, a few grains of calomel or blue pill, causes, very soon after, an improved action of the kidney. We believe it to be in this indirect manner that colchicum acts diuretically.

Its action both on the liver and kidneys is satisfactory. When its diuretic effect is wanted, and that speedily, the acetum colchici is to be preferred. When its cholagogue and cathartic effects are more particularly desired, the extract, wine, or tincture, is to be selected. These, more particularly the first of them, should rarely or never be given alone, and uncombined with some other more safe and certain purgative, as mercury, aloes, colocynth, scammony. Because colchicum, given by itself, sometimes entirely fails to act either as a renal or alvine evacuant, and being absorbed, operates alarmingly on the nervous system, causing the most marked prostration.

In cases of gout in robust subjects, accompanied with much hepatic

engorgement, and in whom the tongue and conjunctivæ are yellow, the most efficient combination is of that of the wine, tincture, or acetum of colchicum, given in draught, with from two to six drachms of sulphate of magnesia, and two to six grains of nitrate of potass. This may be repeated every three to six hours, until the bowels and kidneys are decidedly acted on. In these cases, the dose of the wine or tincture may be from ten to sixty drops. In old and worn-out gouty subjects, in whom any tendency to metastasis has manifested itself, and in the subjects of chronic rheumatism, we must be more guarded in the use of the neutral salts; more careful to conjoin with the colchicum, cordials, aromatics, and even stimulants. In such subjects, the extracts or tinctures of rhubarb, or aloes are the best purgatives to combine with the colchicum. The compound infusion and tincture of senna may also be tried. Many persons of gouty or rheumatic habit or diathesis, but who have never had a fairly formed attack of either disease, are subject to innumerable neuralgic affections, of very anomalous and perplexing character. Both patient and practitioner are puzzled, and perhaps alarmed, by them, until either a regular fit of gout, or some rheumatic symptoms, both attended with more or less renal derangement, explain at once, and relieve the preceding obscure and troublesome lesions of sensibility and secretion. A quantity of uric acid is voided, and health is, for the first time at least, nearly or wholly restored. In subjects of this kind, the anomalous nerve-aches referred to may be often removed, and a regular attack of gout or rheumatism prevented (a matter of great importance), by the timely use of colchicum. A little of it should be given nightly, or twice daily, with some ordinary aperient; the neuralgic and other precursory symptoms will subside, and a crisis be averted. A useful ordinary anti-gout pill (one, we mean, adapted to mitigate an actual paroxysm) consists of perhaps two parts of the extracts of colchicum and colocynth and half a part of hydrochlorate of morphia and repeated every hour or two hours, till bowels and kidney are acted on; which occurring, pain subsides. A solution of any of the preparations of iodine is said to form an antidote to an over-dose of colchicum.

Part xv., p. 122.

COLD.

Effect of Temperature in causing Reflex Actions.—Mr. Barlow, of Oxford, draws our attention to many of the excellent effects of cold, when applied to the skin, in stimulating the incident nerves, and thereby acting as a very powerful agent in the treatment of some diseases. Most of these effects may be familiar to all of us, but it is wholesome to be reminded of practices and effects, which, sometimes, from their notoriety, are apt to be overlooked by the regular practitioner. For example, a dash of cold water will often rouse the system from a state of syncope, and in coma succeeding to convulsion, the effect will be equally striking, even when the respiratory, circulatory, and cerebral functions seem almost extinguished. And there is every reason to suppose that some cases of coma which depend more upon functional than organic injury, are changed from temporary into permanent death, from no adequate stimulus being applied to the incident nerves. In many cases of narcotic poisoning, the

sudden application of cold may be repeated time after time with advantage; the great source of danger consisting in the blood not being sufficiently oxygenated through deficient respiration; the brain thus becoming deeply influenced primarily by the narcotic, and secondarily by venous blood. Mr. Barlow relates a case of this description. A child took a large quantity of opium; fearful coma was the consequence, accompanied by long pauses in the respiration and circulation. Cold water was dashed on the surface repeatedly, followed by friction, with the happiest result—"the nerves of the skin were made to play that part which, under ordinary circumstances, the vagi nerves perform (through the stimulus of carbonic acid), and so life was continued, and a perfect recovery ensued."

In poisoning by prussic acid, and in congenital asphyxia, the cold douche will be found a valuable auxiliary to other measures. It occasionally happens that a sudden alternation from cold to hot applications, and from hot to cold, will be more beneficial than a continuance in the one or the other, exemplifying what Dr. Marshall Hall says, "that it is not the mere application of cold, but the sudden application of *cold* to a *warm* surface, which is the effectual means of exciting respiration. It is the *sudden alternation*."

As a means of producing contraction of the womb, it is too familiar to dwell upon; but it has not been sufficiently made use of as a stimulant to the expulsive fibres of the bladder, as is most interestingly illustrated by Dr. Currie, in a case of retention of urine, in which the patient's feet were placed on a cold marble slab, and cold water was dashed over his thighs and legs. The effect was instantaneous; the urine burst from him in a full stream, although the common remedies had been tried in vain.

Part viii., p. 43.

Method of Applying Cold.—Dr. Arnott says:

What I have found a perfect mode of applying cold, is to cover the part with a very thin bladder, of the requisite dimensions, containing a small quantity of water of the desired temperature, which is constantly renewed by establishing a current through the bladder, by means of two pewter tubes; one connected with a reservoir, and having a stop-cock at its end to regulate the stream; the other leading to a waste-vessel. The elevation of the waste-pipe regulates the quantity of water in the bladder; and as, from the change of position of the patient, this elevation must be frequently altered, it is convenient to rest the extremity of the pipe on a sliding ring of a common retort stand. By this apparatus, the temperature can be regulated with the greatest precision, and (when such a test should guide us) water of that temperature can be chosen, whether high or low, which is most agreeable to the patient's feelings. If sudden and severe cold is desirable, very cold water running rapidly through the bladder will reduce the temperature much more rapidly than the application of ice. Cold and heat can thus be conveniently applied (by fixing the ends of the supply and waste pipes together, and tying them into one end of the bladder) to various internal as well as external parts; the cold to check hemorrhage, as in menorrhagia; the heat to promote the natural discharge of the part, as in amenorrhœa. When used to restrain hemorrhage, the plugging of the passage by the distended bladder is an important part of the treatment, and is much better adapted for its

purpose than the irritating and less manageable expedients hitherto employed.

A modification of this method of applying cold, contrived for the purpose of combining pressure with it, has been used, on my recommendation, and with great advantage, in a case of strangulated hernia.

Part xi., p. 192.

COLIC.

Lead Colic.—Cataplasms of tobacco to the bowels, suggested in cases of saturnine colic.

Part i., p. 122.

Ileus cured by Injection of Air.—A dragoon was seized with violent colic and symptoms of intense enteritis. An antiphlogistic treatment was employed without any benefit. The bowels soon became obstinately constipated, and he vomited stercoraceous matter; some mechanical obstacle was now supposed to exist. A quantity of air was thrown up the anus, and as soon as the intestines became well distended, a copious evacuation of solid feces took place. This was soon followed by other stools; the vomiting now ceased, and the man quickly recovered.

Part iii., p. 57.

Belladonna in cases of Ileus.—M. Becker has employed an injection of belladonna with the best effects in a case of ileus. A woman, forty-eight years of age, was seized, without any apparent cause, with constipation and vomiting; the ejected matter became gradually more foul, and at length no fecal matter was thrown up; this state had continued for five days, when M. Becker ordered a lavement, containing four scruples of the belladonna root. The pain of the abdomen, vomiting, etc., soon ceased, and in half an hour the woman passed a stool, with a good deal of blood in it. No narcotic effects were produced by the remedy.

Part iv., p. 52.

Treatment of Painter's Colic.—Dr. C. J. B. Williams' treatment is not only the exhibition of powerful purgatives, but the combining them with belladonna, in order to relieve the excessive pain, and following up this with alum, when the bowels have been freely opened. In this obstinate case, the bowels had not been opened for three or four days. The following was prescribed:

R Hydrag. chlorid. gr. iv.; extr. belladonnæ, gr. ss. Cap. statim.

R Olei crotonis, m℥.; extr. belladonnæ, gr. ss. micæ panis, q. s.; Fiat pinda stia quaque hora adhibenda donec plene soluta fuerit alvus. Abdomini admoov. hirud. xij.; et postea soventur abdomen.

R Alumine sulphatis, gr. x.; aquæ menthæ pip., ℥ss.; acidi hydrocyan. dil. m℥.; fiat haustus, ter die sum.

Part v., p. 47.

Colic during Administration of Acetate of Lead.—If colic arise from the use of this medicine, alum will be found very successful. Given in full doses, as from a scruple to two drachms every three or four hours, it will often allay vomiting, mitigate pain, and open the bowels better than any other medicine.

Part vi., p. 192.

Sulphuric Acid a Preventive of Lead Colic.—Mr. Benson saw a statement some time ago, that in France "sulphuric lemonade" was very

successful in preventing the prevalence of this malady. He has, therefore, been trying a mixture of treacle-beer, sulphuric acid, and bicarbonate of soda, for his workmen, who were allowed to drink it at pleasure.

FORMULA FOR PREPARING THE SULPHURIC BEER.

Take of treacle, 15 lbs.; bruised ginger, $\frac{1}{2}$ lb.; water, 12 gallons; yeast, 1 quart; bicarbonate of soda, $1\frac{1}{2}$ ounce; sulphuric acid (oil of vitriol) $1\frac{1}{2}$ ounce, by weight.

Boil the ginger in two gallons of water; add the treacle and the remainder of the water, hot. When nearly cold transfer it to a cask, and add the yeast to cause fermentation. When this has nearly ceased, add the sulphuric acid, previously diluted with eight times its quantity of water, and then add the bicarbonate of soda dissolved in one quart of water. Close up the cask, and in three or four days the beer will be fit for use. As acetous fermentation speedily takes place, particularly in hot weather, new supplies should be prepared as required. It is supposed that the highly poisonous carbonate of lead is by this means converted into the innocuous sulphate. The addition of soda gives a pleasant briskness to the beer, but is not added in sufficient quantity to neutralize above one half of the sulphuric acid, so that quite sufficient of this remains to convert the carbonate into the sulphate of lead.

Part viii., p. 48.

Colica Pictorum.—Give alum, in doses of fifteen grains, every two hours. It should be reduced to an impalpable powder, and made into an electuary with treacle.

Part xix., p. 53.

Chloroform in Lead Colic.—The internal and external use of chloroform is recommended as a most valuable agent for removing the pain, calming the spasms, and facilitating the action of purgatives in cases of lead colic.

The mode of external application, adopted by Dr. Aran, is to pour from one to two drachms of chloroform on a wet cloth, and keep it applied to the abdomen for a quarter or half an hour. He also gives it in mixture, and in enemata, preceded by a common injection. It is on the last application, however, that he seems to place most reliance. The enemata have sometimes appeared to increase the pain.

Part xxiii., p. 126.

Spasmodic Action of the Bowels.—This disease, so long as it does not exceed the limit of spasmodic action, generally terminates favorably; but if it should have assumed the character of inflammation, then the progress will be governed by such an aggravation.

The indications of cure are: 1st, to relax spasm; 2d, to restore the normal peristaltic action. The first will best be fulfilled by a full bleeding, opium and the warm bath. The second by purgatives. Fourteen or sixteen ounces of blood should be immediately taken from the system, followed by a pill, containing two grains of opium, and, if the continuance of the spasm render it necessary, one grain is to be repeated every three or four hours. This treatment will usually succeed in subduing the pain and vomiting, and sometimes act as an aperient also; but if it should fail of the latter effect, the following pill is to be taken every hour till the bowels are acted upon:

R Hydragryri chloridi, gr. j.; extr. coloc. comp., gr. iv.; olei camph. q. s. Misce; fiat pilula, omni horâ sumenda donec operaverit.

The warm bath may be used at this period—the temperature 100°, and the patient may be immersed twenty minutes, taking care that the temperature be not diminished.

Sometimes the symptoms of saturnine colic are met with in persons not employed in the use of lead. In such a case the gums are to be inspected, and if there be a blue line along their margin, we may be sure that the patient has been in some way or another exposed to the deleterious influence of this poison. *Part xxvi., p. 82.*

Lead Colic.—The preliminary signs induced by the action of lead upon the system are more quickly perceptible after the poison has been taken in by the respiratory apparatus than by the digestive organs. The sign which first appears is a discoloration of the gums. Those parts nearest the teeth for one or two lines in length acquire a bluish, or greyish slate color, other parts of the gums also become slightly tinged with blue. In some cases there is evident congestion, and the slightest touch causes hemorrhage. The teeth also sometimes acquire a brown tinge, and become brittle, though these are uncertain signs. The next sign is the complexion; a transparent waxy tint being observable in the countenance, giving an appearance of excessive delicacy. The next change is that the face becomes more emaciated than the rest of the body, and assumes an anxious and depressed expression. All these signs may continue for a long time, and the workman may, though with impaired vigor, perform the duties of his calling. Before actual colic comes on, two new symptoms make their appearance, viz., pain and constipation, which are the most prominent characteristics of the disease.

Compound extract of colocynth, with calomel and opium, is the best purgative. To prevent the constitutional effects of the calomel, combine these remedies with croton oil. Acute cases are relieved by a bath containing the sulphide of potassium in the proportion of 4 ounces to 30 gallons. In the *paralysis from lead* the same bath is valuable, along with the galvanic form of electricity. The way in which this is produced is as follows: The positive metal is to be considered the lead in the nerves, muscles and tissues, and the negative metal plates of copper attached to the limb itself, a weak solution of acetic acid forming the oxidizing link. Acetic acid is chosen because the acetate of lead is soluble.

Part xxvii., p. 229.

Colic.—Whatever may be the kind of colic, the first thing is to get the bowels open. First put the patient in a warm bath, and while in it, let him have a warm water enema; this is to be repeated after a time so as to distend the colon. Then give a pill every three hours, until the bowels act, composed as follows: one drachm of compound extract of colocynth and three drops of croton oil; divided into twelve. Leeches frequently do good, but the majority of cases do not require them. In the more obstinate and complicated cases, the use of opium will be of the greatest benefit.

Part xxviii., p. 126.

Colic, Painter's.—Give half a drachm of chloroform every two or three hours, and increase this to a drachm, if necessary. It may be given in any liquid, such as water.

Part xxxi., p. 93.

COLLAPSE.

To rouse the vital energies of the human frame in cases of cholera, suspended animation, and other causes of apparent sinking from threatening collapse, apply scorching hot pillows along the spine every ten minutes.

Part xxiv., p. 325.

Turpentine in Collapse.—Mr. Whitby relates the following case of collapse occurring in a case of measles. The patient was a little boy about three and a half years old. He says:

On putting my ear to his chest, the air entered both lungs, but expiration was most diffuse throughout them, and toward the base of the lower lobes it entered but faintly. Under these circumstances, wishing, if possible, to clear the bronchi from secretion, and yet fearing the lowering effect of any emetic alone, I was induced to combine with two drachms of ipecacuanha wine about forty minims of *sp. terebinthine*, having very lately seen the powerful manner in which this medicine acts in rousing parturient females when almost dead from hemorrhage. I also gave the child a mixture, consisting of vinegar, ammonia, and squill, and ordered brandy in small quantities. But the action of the ipecacuanha and turpentine was most surprising; the child seemed to rally immediately, vomited, and was much relieved. The next morning it was better, but toward the afternoon seemed to be relapsing into its former state. I then again administered the turpentine, with the same effect, and from that period he has gradually progressed to convalescence—no strangury or unpleasant symptom followed the use of the medicine.

Part xxvi., p. 325.

COLLODION.

Uses of Collodion.—The following is an abstract of the purposes for which collodion has been employed in surgery:

1. In *wounds, ulcers, and other external lesions*, it has been employed with great success.

Dr. Whitney employed it in the *removal of a ven from the head*. To obviate the occurrence of erysipelas, from the presence of sutures, Dr. Whitney shaved the hair from the scalp, and by means of the cotton solution, glued some pieces of sheep-skin on each flap, at a short distance from the wound. These straps were then brought together, and retained in their position by sutures. The wound healed favorably; and pain, and the usual accidents arising from the presence and removal of sutures, were entirely obviated.

Dr. Comstock employed this liquid as a dressing in a case of *extensive laceration of the perineum*, with a success that, he thinks, never attended any other mode of management. The dressings remained firmly attached and solid during the process of healing, notwithstanding they were, for a time, almost constantly covered by urine mucus, and subject to being displaced by the motions of the patient.

Dr. Simpson employed collodion, with perfect success, in some cases of *painful fissure at the base of the nipple*.

Dr. Simpson also mentions that, in a case where Professor Miller had removed a portion of necrosed bone from the lower jaw, he (Dr. S.) dressed the wound with collodion, with the effect of retaining its edges in apposition.

Dr. Crawford employed it in the case of a young gentleman who met with a severe burn of the face and hands. The burn was covered with a thin glazing, which completely excluded the air, and the pain almost immediately subsided. Its utility in burns has been confirmed by other practitioners.

In *ulceration of the os and cervix uteri*, Dr. Mitchell considers it greatly superior to nitrate of silver for forming an artificial covering to the ulcer, and permitting the healing process to go on underneath. The ulcerated surface being wiped clean and dry with soft lint, the solution is rapidly applied with a camel's hair pencil, and allowed to dry; a second, third, and fourth coating, if necessary, can then be applied. The first application is attended with a slight burning sensation, caused by the ether, followed by a sensation of coldness, from its evaporation. The application requires to be renewed at the end of forty-eight hours, as the mucus collects beneath the dressing, and raises it.

Dr. Yvonneau, of Blois, communicated the particulars of a case in which he had employed collodion, with an amount of success exceeding his expectations. The patient, a child of five years old, had *extensive fistulous ulceration of the right cheek*, permitting the escape of saliva, as well as of food and drink; the cheek had also contracted very firm adhesions with the gums of both jaws. After an ineffectual attempt to remedy the mischief, by a common mode of operation and dressing, he determined, as a last resource, to try the effect of collodion. Having obtained anaesthesia by means of chloroform, he carefully brought together the edges of the wounds, and retained them in their position by long and firmly agglutinated bandages, passing completely over the chin, upper lip, and *ali nasi*. Over the whole he applied a layer of collodion, which, besides its adhesive property, completely protected the dressings from the saliva and food, which had been the main causes of the failure of the former operation. At the end of three days, a slight displacement of the dressings rendered readjustment necessary, when the edges of the wound were found united to a considerable extent. On the eighth day, the dressings were again removed; when, in place of the enormous fistulous opening, only a small cicatrix was found, which at length almost disappeared. The collodion, in this case, appears to have been of service, not only in preventing the dressings from imbibing fluid from without, but also by preventing the escape of saliva, externally, through the wound.

2. *Cutaneous Diseases*.—Mr. Erasmus Wilson says: "The diseases of the skin in which I have hitherto used the collodion with advantage are, *chronic erythema of the face*; *intertrigo*; *chapped nipples and chapped hands*; *herpes labialis, preputialis, and zoster*; *lichen agrius*; *lupus non exedens and exedens*; *acne vulgaris*; and several affections of the *sebiparous organs*. Small superficial ulcerations of the corona glandis and prepuce, caused by excoriation, were cured by a single application; and in a gentleman very susceptible of excoriation, it acted as a prophylactic. From the success of the latter trial, I am induced to think that it might be usually employed as a prophylactic, in cases of exposure to syphilitic contagion."

Dr. Ranking says: I have not had an opportunity of trying this preparation in *varicela*, but I would suggest it as a valuable application to the face, etc., for the purpose of excluding air, and thus preventing pitting.

3. *As a Stopping for Teeth*.—The method which Mr. J. Robinson adopts is, to let the patient first wash the mouth with warm water, in which a few grains of bicarbonate of soda have been dissolved. He then removes from the cavity any foreign substance likely to cause irritation. After drying the cavity, he drops from a point the collodion, to which have been added a few grains of morphia, after which he fills the cavity with asbestos, and saturates with collodion. Lastly, over this he places a pledget of bibulous paper. In a few seconds the whole becomes solidified, and forms an excellent non-conductor of heat and cold to the exposed nerve.

Part xia., p. 11.

Properties and Uses of.—Collodion, when properly prepared, is, at first, an opaline, adhesive fluid, smelling strongly of ether, and becoming perfectly transparent, by the deposit of a tenacious shreddy material, when at rest. When a layer of this is laid on any surface, a transparent coating is left, by the evaporation of the ether, which possesses, in a marked degree, the properties of *contractility* and *adhesion*, as well as *transparency*, *pliancy* and *impermeability*. It does away with the necessity for sutures in incised wounds of almost any extent. It is sure to remain in intimate contact with the skin till union is complete; and, being quite impervious to water, and presenting a polished surface, it allows the surrounding parts to be washed, without regard to the wound or dressing. It is colorless and transparent; thus permitting the surgeon to witness all that goes on beneath, without involving the necessity for its removal. No heat is necessary for its application; and the presence of a moderate degree of cold is only objectionable, in retarding the evaporation of the ether. It may be made at a trifling cost.

Mode of Application.—Dr. Bigelow gives the following directions for the application of collodion: "For straight incisions, of whatever length, provided the edges can be brought together without difficulty, it is better to apply the solution in immediate contact with the skin, as follows: The bleeding should be arrested, and the skin thoroughly dried. If the lips of the wound are themselves in contact, the surgeon has only to apply a coating of the solution lengthwise over the approximated edges by means of a camel's hair pencil, leaving it untouched after the brush has passed over it until it is dry, during, perhaps, ten or twenty seconds. This first film will of itself have confined the edges together; but in order to increase the firmness of the support, more must then be applied in the same manner, allowing it to extend on either side of the incision, half an inch, or more." When the wound gapes, the edges must be held together; and if the wound be long, the collodion must be first applied to the upper part, and allowed to dry. In such cases, something more than the film of collodion is required to counteract the tendency of the edges of the wound to separate. For this purpose, Dr. Bigelow recommends gold-beater's skin, or oiled silk, which maintains the transparency of the dressing; it should be applied to the wound after the solution has dried and firmly contracted.

If, however, adhesion by the first intention be not desired, the collodion may be laid on transversely, like strips of plaster; and one strip should be

dried, and have the support of gold-beater's skin, before the rest is applied. Room is thus left for the escape of pus, and for the surgeon to view the progress of the wound. Collodion answers particularly well after the operation for hare-lip, or cancer of the lip, where union by the first intention, and a narrow linear cicatrix, are so desirable. The use of one or two sutures to the mucous surface is not obviated, as this will not permit the collodion to adhere with sufficient certainty. *Part xix., p. 319.*

Uses of Collodion, and Certain Improvements in its Application.—Mr. Startin finds that collodion acts rather as an irritant in the more inflammatory affections of the skin, owing to its contractile property; but from this very property it is extremely useful in procuring the union of wounds by the first intention. It is particularly applicable after the operations for hare-lip, entropium, and ptosis.

Pure collodion may also be advantageously employed as a palliative in the latter case, as also in various paralytic affections of the facial muscles, where the antagonist muscle has distorted the features, the parts being adjusted by the finger to their normal position before the collodion is applied, and this position maintained until the solution is perfectly dry. As a bandage, also, to enlarged joints, of the fingers especially, the pure solution will be found useful; and its pellicle would seem to deserve a trial as an artificial tympanum, where such a contrivance may be indicated, the edges of the new membrane being readily attached to the walls of the meatus by a small brush, armed with the solution in its liquid form. Other instances, where the contractile qualities of collodion may prove of advantage, will, doubtless present themselves to the surgical mind; but it will not be found so applicable to discharging ulcers as has been stated (save in the case of chaps and fissures), unless applied after the following directions: Dry the ulcer with bibulous paper; wash over its surface with a large, soft brush, wetted with ether; dry a second time with the paper; apply by means of the same, or a second brush, the collodion in a *circular* manner, so as to cover the edges of the ulcer to a greater or less extent, as may be deemed necessary, and varnish over so much of the ulcer itself, as to leave a *small central opening* for the escape of the discharges. This expedient at once reduces a large sore into a small one, and does not prevent any stimulus judged favorable to cicatrization being applied in the dry form, before the varnishing process is commenced.

[Mr. Startin has been endeavoring, by the addition of other substances to collodion, to fulfill the following intentions:]

1st, To render the liquid opaque, and of such a tint as not to be distinguished from the skin on which it might be applied, whilst it should conceal defects; 2d, To remove its great contractility and render it opaque, more elastic, and more closely resembling the solution of gutta serena, without including the unfavorable properties of this solution; and 3dly, To produce a varnish which should be porous, and thus imitate, as nearly as possible, the natural scarf skin, and thus prevent much of the heat and tumefaction which attends the application of an impermeable covering on the skin.

The first of these objects is readily attained by adding an ethereal tincture of turmeric or saffron, and of red Sander's wood, or alkanet root, so as to produce the required tint. The second, after numerous experiments, is found to be best accomplished by the addition of a drying, or a fat oil, as linseed, cocoa-nut, pure cod-liver, or lard oil, previously dissolved in ether;

the proportion being half a drachm to a drachm of oil, to an ounce of collodion—the exact quantity being regulated by the greater or less degree of elasticity and opacity required. It is quite remarkable, how completely this simple procedure will accomplish the desired end; for by its use, and the colored collodion, so exact a representation of the cuticle may be obtained, that the varnish produced, when applied in a thin coat, cannot be distinguished from the surrounding skin without close observation and magnifying power. It would also appear to be equally elastic with the cuticle, whilst its contractility is much modified, or entirely lost, according to the proportions of the oil employed; care must, of course, be taken to use the best materials only, or the color will not be permanent, but liable to change to a yellow dirty hue, whilst it will prove an irritant instead of a soothing application. The third object, namely, that of rendering the varnish porous, is also to be obtained by the addition of a small quantity of purified, highly concentrated, nearly anhydrous glycerine. By this substance the collod. tinct. ppt. can be rendered as soft as a thin layer of ointment, which it resembles in most respects, save that it forms over the part a uniform covering which is coherent, and not liable to be washed away by slight discharges, or external gentle ablutions, whilst it does not require the support of lint or linen.

As a simple varnish in cases of chaps, chilblains and other minor affections of the cutis, the collod. ppt. will be found a panacea; but in the bed-ridden, who are not provided with Dr. Arnott's scientific hydrostatic contrivance, it will be found no ordinary boon, as also in cases of menorrhoea, and excoriations from the pressure of instruments, trusses, etc. As a prophylactic for practitioners in midwifery, in suspected cases, or where the hands are injured by disease or accident, it will be invaluable, as also in the dissecting room. It should not be applied in too thick a coat, and a large, soft camel-hair brush must be used, which should afterwards be washed in ether. A bottle of ether, also, might always be conveniently supplied with collodion, so as to reduce the solution to the required thickness. Where ulceration is present, a portion in the centre of the ulcer should be left uncovered by collodion, in the manner I have already mentioned; and when any part concerned in motion is to be coated, the skin should be put upon the stretch, and marks, etc., should be concealed with a proper pigment, before the collodion is painted over the part.

Part xix., p. 320.

Mode of Preparing.—Collodion, prepared in the following manner, is better adapted for some purposes than that made in the ordinary way: Mix 4 lbs. of nitrate of potash with 8 lbs. of sulphuric acid in a glazed vessel, add the cotton, and agitate for half an hour with a glass rod; then wash and dry the cotton very carefully. Dissolve 1 oz. of this cotton in 16 fluid ounces of rectified sulphuric ether, and when dissolved, add 1 oz. of absolute alcohol. When the solution has stood twenty-four hours, it will be ready for use. A little of this collodion, allowed to evaporate till it becomes of the consistence of thick paste, answers well for stopping teeth.

Part xxi., p. 330.

Medicated Collodion.—The good effects following the application of this substance to affected parts of the skin has induced M. Aran to recommend—collodion, 100 parts; tinct. of the perchloride of iron, 100 parts. Mix.

Dr. Hannon, of Brussels (Presse Médicale, 1850), recommends the

combination of collodion with the acetate of lead, by pouring, drop by drop, an ounce and a half of collodion into warm, concentrated alcoholic solution of neutral acetate of lead, continually stirring up the mixture. The saturnine collodion is very supple; and, according to the ideas of the author, participates in the properties of the two principal constituents.

Part xxxi., p. 238.

Iodized Collodion, External Use of.—This will be found a very ready and efficacious way of applying iodine in very many forms of tumors. The quantity of iodine required is less than usual, as it is prevented from evaporating by the pedicle of collodion. Ten or twenty grains to the ounce will be sufficient for all ordinary purposes, and often five grains to the ounce. It also produces a degree of pressure which, in some cases, is important. Other agents, as the alkaloids, soluble in ether, may be applied locally through its agency, and soon produce their specific action.

Part xxxii., p. 317.

COMA.

Coma, succeeding to Convulsion.—The sudden alternation of cold to a warm surface recommended, in the form of cold and warm affusions.

Part viii., p. 45.

Coma and Delirium.—The conclusions to which the facts detailed in Dr. Todd's lectures have led him, with regard to the clinical history of delirium and coma, are thus recapitulated:

1st. That the introduction of certain poisonous agents into the blood, either directly or through the digestive organs, is capable of producing delirium and coma. 2d. That a deteriorated and poisoned condition of the blood is favorable to the production of delirium and coma, as in the cases of rheumatic and gouty delirium and coma, and of the delirium and coma of typhus, erysipelas, and the exanthemata. 3d. That the same state or states of brain which are favorable to the production of epileptic convulsions, are likewise favorable to the development of delirium and coma. 4th. That the anæmic state, or that state of blood in which the coloring matter is very deficient, is highly favorable to the production of delirium and coma. 5th. That a shock to the brain—*concussion*—may produce coma, and likewise delirium; and that compression of the brain will produce coma, but not delirium. And, lastly, that in all these cases the delirium or the coma may occur in their highest degree without the slightest evidence of any inflammation of the brain or of its membranes.

But although, in the vast majority of instances, delirium and coma, even in their most highly developed states, occur independently of inflammation, nevertheless inflammation of the membranes of the brain is undoubtedly capable of producing both delirium and coma, and it is often a matter of great difficulty to distinguish between the inflammatory and the non-inflammatory affections of this kind.

Inflammation of the brain is, in adult subjects, at least, a rare disease; and, therefore, the delirium and coma arising from this cause is of rare occurrence as compared with other forms, and the inflammatory delirium is generally of a low kind, resembling that of typhus, and has a great tendency

to pass into coma; and further, is frequently ushered in by vomiting or accompanied by a marked sluggish and slow state of the pulse.

Part XVI, p. 4.

Management of Coma.—Be careful in the first instance, that the coma is not from pressure or from inflammation of the brain, or dependent on opium or alcohol in the system. Besides these, the coma may be traumatic, epileptic, or renal epileptic, or hysterical, or rheumatic, or gonorrhoeal. Always bear in mind, in cases of coma, to examine also the state of the renal and hepatic secretions; if these fail, coma is the result. Avoid the traumatic form, or that from concussion, the system of non-interference is the best. In the epileptic form also, the expectant plan, with moderate purging, answers better than any other. In the coma of gonorrhoea, or scarlet fever, the treatment must be of the eliminating kind, as bleeding and purging, holding up at the same time the powers of the digestive organs. If there is reason to believe the blood is poisoned by anaemia, a hot air bath is of service, giving also drastic purgatives, as calomel, &c. At the same time, always remember, that as delirium is the slighter degree, and coma the more aggravated condition of the same state, the treatment of the two conditions must be similar.

Part VII, p. 2.

CONDYLOMA.

Condyloma, a Primary form of Venereal Disease Identical with Syphilis.—The flat and whitish elevations of the skin occurring on the verge of the anus, on the perineum, labia, or scrotum, and occasionally on the thighs, or even in the axillae, and known under the names of *condylomata, tubercules, muqueuses*, etc., are in this country generally ascribed to one of two causes. By some of our most distinguished writers they are ascribed to inattention to cleanliness in persons laboring under chronic discharge from the genital organs.

By others these condylomata are believed to be identical with the early eruption which follows the true syphilitic sore, modified in its appearance by the situation where it occurs. "When the eruption," says Mr. Thompson, speaking of the scaly syphilitic eruption, "affects a skin which is exposed by another skin, as between the nates, or between the scrotum and thigh, or under the arms, or between the thighs, it is not scaly; but the skin becomes elevated into a moist, soft, flat, or somewhat convex surface, which discharges a whitish matter. These are the appearances which I believe, in authors are termed condylomata, fici, crista, mariscus, etc., denominations applied according to their figure, or perhaps the fancy of the practitioner."

The opinion last cited is the one generally adopted by most of our systematic writers on surgery regarding condylomata. By M. Ricord and other continental writers they are arranged with the secondary symptoms of syphilis.

Dr. Wallace, of Dublin, was the first to point out that it was almost invariably associated with a certain group of symptoms of a peculiar and definite character. Of this group the most remarkable pointed out by him was a peculiar morbid state of the mucous surface of the lips, cheeks, jaw,

tine arches, or tonsils. This morbid state consisted in peculiar white elevated patches, having the appearance of parts touched with nitrate of silver, or coated with milk; these patches are more or less elevated, irregular in form, and presenting occasionally superficial ulcerations on their surface.

Dr. Wallace further pointed out that these spots were associated with, or rather preceded in general by, an exanthematous eruption of a mottled appearance, and of a red or brownish color, sometimes preceded by vesication or scaldiness, but never by pustules; sometimes elevated and approaching in appearance, in various parts of the skin, to the mucous tubercles or condylomata commonly observed on the genital organs, and producing in the folds of the skin (as between the fingers, etc.) those linear ulcerations called rhagades; under the nails, onychia; on the head, falling of the hair.

From these and other facts, he inferred that condylomata, and the peculiar patches on the mucous membrane of the mouth and fauces, were parts of the same exanthema, modified in appearance by the tissue where they appeared, and constituting a group of "constitutional," to use his own words, "or secondary venereal symptoms, of which condylomata, rhagades, onychia, falling of the hair, and a peculiar state of disease of the mucous membrane of the mouth, are the most remarkable." To this group of symptoms he gave the name of "exanthematic primary syphilis."

[Another view of the subject is now becoming prevalent, viz., "that condyloma is a primary form of venereal disease, distinct from both gonorrhoea and syphilis, but equally definite and specific in its character with the latter affection." Dr. Skae having had his attention directed to this subject, investigated a great number of cases at the Lock Hospital.]

The appearance presented on the genital organs and parts in the immediate neighborhood, were moist, indurated, and somewhat elevated patches, of a whitish, and occasionally yellowish-white color. Most of these patches were irregular in form, but a considerable number of them, especially of those on the labia and thighs, were rounded and prominent. They were situated most frequently along the opposite margins of the labia majora, on the perineum, and verge of the anus; less frequently on the outer surfaces of the labia and adjacent surface of the thighs, and on opposite and corresponding surfaces of the thighs, two or three inches below the labia. Many of them were the seats of superficial ulceration, or more frequently of vesication, the surface of the condyloma discharging a thin muco-purulent secretion. Those which were situated on the opposite sides of the nates were less elevated, and presented a tendency to ulcerate in fissures as they approached the verge of the anus.

In two instances, three or four considerable condylomatous patches, white and elevated, although flat, were seen extending over the inner surface of the vagina, as high as the cervix uteri.

In nearly all the patients the mouth or fauces presented the appearances described by Dr. Wallace as characteristic of this affection.

In one or two instances only, and those were cases seen at an early stage of the affection, was the cutaneous eruption, described by Dr. Wallace as a concomitant of the disease, observed. In those cases it presented the red-brown stain, the irregular form, and the tendency to scale off, or rather to desquamate, which seems to have been regarded by him as characteristic. In only one instance did there exist a distinct condyloma in parts of the

body other than those enumerated. This occurred in the case of a patient who presented a very large condylomatous patch in the left axilla.

My treatment consisted chiefly in the application of stimulants to the condylomata; the use of astringent injections and cold washing, for the cure of the vaginal and uterine discharges; and in cases of the latter, the internal administration of tincture of catharides. In several cases when there existed cutaneous eruptions, the iodide of potassium was given. In no instance was any mercury administered, except in the case of the woman affected with iitis.

The local application which I have found most advantageous is the sulphate of copper. The condylomata were rubbed pretty freely with a solution of this salt, moistened with water, every second day, and in some cases daily; and a lotion of it, containing two or three grains in each ounce of water, was kept applied by the patient. Under this treatment the condylomatous excrescences disappeared with remarkable rapidity. In the cases where there were ulcers suspected to be syphilitic, these were touched occasionally with the nitrate of silver. The patches in the mouth were repeatedly touched with the sulphate of copper or nitrate of silver, more frequently with the former, and disappeared with equal rapidity with those on the labia and perineum.

[Dr. Skae ends his paper with the following conclusions:—]

1. That condyloma is a primary form of venereal disease—specific in its character and its origin, and distinct from gonorrhoea or syphilis. 2. That it is identical with the disease described under the name of *sibbens* or *sivvens*. 3. That it is communicable by contagion and inoculation. 4. That the difficulty of producing it by direct inoculation, and the similarity of the affection of the mouth in cases produced by sexual intercourse, viz. that in which it has been supposed to be produced by contact of the lips, etc., render it probable that the affection of the mouth is always a constitutional symptom resulting from a venereal origin. 5. That it is curable without the use of mercury.

[*Sibbens* was a disease which at one time ravaged Scotland to a great extent, but is now almost extinct.]

Dr. Gilchrist, in an account published in 1765, of *sibbens* as it appeared in Scotland at a time when it was very prevalent, says: "It first appeared here in the form of a sore throat, or an inflammation of the *uvula* or *py of the larynx*, as it is termed, and neighboring parts. The tonsils were often superficially ulcerated, appearing either raw or covered with a *white slough*. Frequently there was a thrush, that is, *white specks and sloughs*, upon the roof of the mouth and inside of the cheeks and lips, which commonly showed itself at the corners of the mouth in a small rising of the skin, of a pearl or whey color."

"Sometimes there was a hoarseness."—"Scabby eruptions were often met with on the scalp, forehead, inside of the thighs, groins, and parts contiguous."—"The whole surface of the body appeared mottled or flaked, of a dusky copper color, or dirty red."—"Inflammation, soreness, and excrescences about the fundament were frequent."

Dr. Ross Cormack advises the use of the bichloride of mercury, which is no doubt an admirable remedy in many cases, when judiciously given. It should be given "in small and often repeated doses, dissolved in a large quantity of water." In doses of one-twelfth of a grain, repeated every three hours, Dr. Cormack strongly recommends this form of mercury as

many other obstinate forms of skin disease. In condyloma he also advises the internal administration of the iodide of potassium, and ioduret of iron; while his favorite local applications seem to be "nitric acid and chlorinated soda lotions of various strength, creasote in the form of ointment (from 10 to 20 drops to an ounce of ointment), pitch ointment and the acid tar liquid."

Part x., p. 144.

Condylomata.—Those condylomatous growths arising about the perineum, scrotum and anus, in old cases of gonorrhœa, may generally be cured by the application of yellow wash.

Part xxi., p. 270.

Treatment of.—When these are about the anus and other parts, sprinkle a little calomel over them every two or three days. In children, use the grey powder, and for distant patients whom you seldom see, use the following: Hydrarg. chlorid. gr. viij.; zinci oxyd. gr. viij.; mucilag. 3ij.; aquæ 3vj.; Ft. lotio.

Part xxxi., p. 198.

Condyloma.—In the removal of large condylomatous growths, where the peduncle is broad, it will be better to pass two double ligatures through the neck, so as to include a smaller portion in each ligature, and to avoid the risk of hemorrhage from the ligatures slipping. When the growths are large or numerous, the lithotomy position will be found much the most convenient for securing the vessels.

Part xxxiv., p. 162.

Condyloma.—Dr. Gillespie applies the name of condyloma to all those more or less rounded elevations of the skin so frequently met with on the genital organs, or in their neighborhood, in the course of venereal diseases, but which are also occasionally observed where no disease of a venereal character exists.

These excrescences may be solitary or clustered together, either dry or moist, secreting a sero-mucous or muco-purulent fluid, and are almost invariably situated, or may be traced to have commenced, where there is friction between opposing surfaces—as the labia majora in the female, the root of the penis and scrotum in the male, the folds of the nates, the perineum and anus, in either sex.

First remove the exciting cause and enjoin strict cleanliness, afterward apply a strong solution of the sulphate of copper, or the solid sulphate. This also forms an excellent gargle for the affection of the throat. When syphilis is present, a mild mercurial course may be necessary for other symptoms.

Part xxxv., p. 161.

Venereal Warts.—Instead of using the stronger caustics and escharotics, or removing them by operation, all of which cause exquisite pain, and often do not succeed, apply a solution of chromic acid in distilled water, in the proportion of 100 grains of the crystallized salt to the fluid ounce of water. It is best applied by aid of a pointed glass rod, or where a large quantity is needed, by means of a small glass tube drawn to a point. Only so much should be applied as will saturate the diseased growth, avoiding the surrounding healthy parts. If the warts are very extensive, only a part may be treated at once, and repeated applications are necessary. But little pain is caused by this application, and the warts waste and disappear. The best immediate dressing is dry lint, and after the first twenty-four hours, free ablation of the parts and a dressing of dry lint twice daily should be enjoined; or to check any inflammation, the parts may be washed with a solution of lead, and the lint moistened in the same.

Part xxxv., p. 164.

Condylomata.—In those raised patches of skin, known as mucous tubercles, or condylomata, existing about the verge of the anus, and around the genitals, but especially those which are wide spread and flat, the application of a powder, consisting of equal parts of savin and alum, will be found very successful in producing diminution of the swelling, and causing them to dry up.

Part xxxii., p. 22

CONGESTION.

Muriate of Ammonia Internally.—Its combination with the tartarated antimony, in a solution of extract of liquorice, is a valuable prescript. The following is the form usually employed:

R Ammonie mur. ʒj.; ext. glycyrrhiz. ʒij.; antim. tartar. gr. ij.; sqz destil. ʒviij. M.

A large tablespoonful of this mixture is administered every two hours. The antimony forms no inconsiderable part in the operation. When the nauseating effects have made sufficient impression upon the disease, it may be withdrawn, and the muriate continued by itself. In many cases the latter is only administered. Should diarrhoea supervene, suspend the use of the muriate, pro tem.

Where the tongue is loaded, it cleans rapidly under its use. A variety of affections of the mucous membrane, sore throats, enlarged tonsils, relaxation of the uvula, etc., feel its influence.

Part ix., p. 26

CONIUM.

Use of Conium.—Dr. Neligan thinks that the almost universal discredit of the medicinal powers of conium is owing, in a great measure, to the heat which is employed in preparing the extract. He tests the extract by what is called the *potash test*, a very simple and certain mode of ascertaining its value.

This consists merely in triturating in a mortar the preparation we wish to test with a small quantity of strong caustic potash, when the peculiar odor of the active principle, *coniia*, is in a few moments emitted; care, however, must be taken not to confound this odor with that of the plant itself, from which it differs most remarkably, the latter bearing a singular resemblance to the smell of mice, while that of the *coniia* is a peculiar, penetrating, very disagreeable, somewhat alkaline odor, an acquaintance with which may be easily acquired by applying the test to the fresh green leaves, or to the recently gathered ripe fruit.

[Dr. Neligan uses what is called the *succus conii* instead of the extract.] This is prepared as follows:

Take of fresh hemlock leaves any quantity, express the juice in a tire press, set it aside for forty-eight hours, pour off the clear, supernatant liquor from the fecula and chlorophyll which it has deposited, and, lastly, add to it a fifth part, by measure, of rectified spirit. This preparation will keep well for two years, and its uniform strength, as well as the facility

with which we can increase or diminish the dose we are administering, gives it a decided advantage over either the extract or powder of the fruit or leaves. The best time for gathering the leaves is when the plant is in full flower, and previous to submitting them to expression, the stalks should be carefully picked out and rejected, the leafy part alone being used.

The cases in which the *succus conii* was found most beneficial were obstinate rheumatic pains, severe chronic arthritis, subacute rheumatism of the muscles of the leg, and facial neuralgia. The dose was generally thirty minims three times a day, in a little water. This may be increased to forty or sixty minims, and decreased or left off according to the effects produced. The most unpleasant effect when given in full doses was a disagreeable sensation of dryness in the throat, accompanied with a feeling of constriction, and some difficulty in swallowing. When this is the case, the medicine ought to be omitted for a short time. *Part x., p. 87.*

CONSTIPATION.

Habitual Costiveness and want of secretion in the bowels may often be remedied by two or three grains of *extractum conii*, with as much *pilula hydrargyri*—given at bed-time. *Part i., p. 60.*

Nitro-muriatic Mixture—Case.—"During the protracted ill-health of this young man, anorexia, indigestion, constipation of the most obstinate kind, low spirits, etc., were constant attendants. The constipation was so obstinate and constant as to resist the action of the most powerful and certain of the ordinary cathartic remedies in a very great degree.

"In this state of the case, after five weeks' trial with internal cathartics, it occurred to us to make the experiment with the nitro-muriatic mixture. We formed the mixture of equal parts of nitric and muriatic acids and water; of this, from six to twelve drops, properly diluted with sugared water, were administered through a small canula of reed, to prevent its action upon the teeth, three times during the day, varying the doses so as to give the largest at noon and at night. At the same time, from thirty to forty drops, diluted in two or three times as much simple water, were applied with a sponge over the regions of the liver and epigastrium, and to the insides of the arms and thighs, having previously washed away from the skin, with soap and water, its unctuous secretion, to enable the acid mixture more readily to penetrate. In this manner the remedy was continued for three days before any decided impression was formed upon the constitution by it. About the close of the third day some improvement of appetite, and of the buccal secretions was manifested. But on the morning of the fourth, to the surprise and gratification of our patient, the bowels acted freely. For two or three days the remedy, although partially discontinued, acted rather too freely upon the bowels; after this time, however, they became more tranquil, and gradually acquired a state of solubility, of the most comfortable nature. It was found necessary, in consequence of the deficiency of the biliary secretion, as manifested by the appearance of the alvine discharges, to continue the use of the acid

mixture, both internally, and externally for some days after it had unlocked the bowels. His recovery from this time was progressive and rapid.

"We believe the acid mixture is especially adapted to the treatment of morbid states of the human body, based in chronic inflammation, or engorgements of the capillary and parenchymatous structures of an indolent nature.

"In diseases of decided inflammatory character, the acid mixture is entirely inapplicable." *Part i., p. 4.*

Constipation with Fissures of the Anus.—Vide "Fissures of Anus," Part iii., p. 11.

Constipation accompanied with Vomiting—Croton Oil.—In cases of constipation accompanied with vomiting, its combination with opium is often advantageous, exhibited in the form of a pill, viz., two or three drops of croton oil and one grain of opium. The opium tends to remove the vomiting, but does not prevent the purgative operation of the oil, which generally takes place in a few hours after the dose is swallowed. We have found the oil a valuable addition to the compound colocynth pill as a laxative in very obstinate conditions of the bowels, in the proportion of one eighth of a drop to each pill. *Part v., p. 10.*

Sulphate of Zinc in Constipation, and Flatulent Affections of the Colon.—"What Dr. Elliotson recommends for sulphate of copper, viz., to give it immediately upon a meal to prevent nausea, is applicable to sulphate of zinc, and where this precaution is not sufficient, I have found the addition of opium enable the stomach to bear the full dose, with the single disadvantage of occasionally inducing thirst. Thus:

R Zinc. sulph. gr. xvij.; pulv. opii gr. iij.; mucilaginis q. suff. M. et pil. vj., cap. un. quinta quaq. hor. post cib.

Where the stomach could dispense with opium, I have directed a pill to be made up with one grain of extract of rhubarb or of gentian, to three of sulphate of zinc, and taken four or five times in the twenty-four hours. It is a main object of this plan to throw at once a strong solution into the cæcum and large intestines, and, since small doses only can be passed through the stomach, they must be made to succeed each other rapidly. Occasionally after fifteen or twenty grains have been taken, there is intolerance of a further dose, and vomiting occurs even when the medicine is qualified with opium." *Part vi., p. 11.*

Use of Ox-gall.—Cases of constipation, dyspepsia, acidity, etc., cured by the use of ox-gall. The following formula, recommended by Dr. Clay:

R Fel. bov. inspiss., 3ij.; ol. carui mx.; magnes. carbonatis q. s. ut fiat massa. M.

Div. in pilulas xxxvj., capiat ij. ter in die.

Dr. Clay further suggests, when necessary, the combination of two or three ounces of recent gall, diluted with as much tepid water, to be used as an injection. *Part vi., p. 6.*

Constipation, Consequent on Paralysis.—Sir B. Brodie recommends the following:

R Comp. ext. colocynth, two scruples and a half; soap, half a scruple croton oil, one drop. Mix, and divide into 12 pills. Dose, one or two every night, as wanted. *Vide Art. "Paralysis," Part ix., p. 10.*

Constipation—Use of Colchicum in.—On this subject, Dr. Chapman, of Philadelphia, makes the following remark on the use of colchicum:

From ten drops of the radical tincture of colchicum, repeated several times in the twenty-four hours, and persisted in for some time, as much may be anticipated with a view merely to the restoration of the lost susceptibility of the bowels, as from anything else within my experience, rarely, indeed, having seen it fail. It is essential, however, to its success, that the dose be small, and this is a precept to be observed in relation to all medicines in this form of constipation. The object being attained rather by gradual insinuations than by forcible impression.

* * * * *

Peristaltic Persuader.—The laxatives from which Dr. Chapman has observed advantage are, extract of the butternut (*juglans cinerea*) the bile of the ox, brimstone with muriate of soda, and the sulphate of soda and magnesia in a considerable quantity of warm water, but his favorite remedy is the peristaltic persuaders: R Rhei ʒj.; ipecac. gr. x.; ol. carui gr. x.; acacia q. s. ft. pil. xx.; cap. ij. o. n. *Part xi., p. 62.*

Treatment of Habitual Constipation by Alum.—*Mimosia acutus* was first accurately described by Dr. Marshall Hall, though in reality a very common disease. The constipation in this disease, Dr. Aldridge thinks, is dependent on feeble nervous action, and accordingly finds alum of great benefit in its treatment. It usually occurs between the ages of thirty and fifty, and is more frequent in women than men, on account of their sedentary habits.

The individuals who labor under it, are usually of a dusky complexion, or more exactly speaking, the skin always presents a dirty appearance. The face is frequently coated with a greasy-looking perspiration. The breath is foul; the gums spongy, and apt to bleed; the tongue broad, flat, flabby, indented at the margins by the pressure of the teeth, and coated with muco-purulent exudation. The bowels are usually constipated; yet the patient may tell you that he has daily alvine evacuations, and yet the colon may be in a state of distention from fecal accumulation. The abdomen is swollen, and feels unequal to the hand, the course of the ascending and transverse colon being more resisting than the other parts to pressure; in these situations there is also sometimes tenderness and even pain. Besides the foregoing symptoms, the patient almost constantly complains of headache; says he is very nervous, subject to tremors, and sudden flushings of heat upon excitement, as well as palpitation of the heart, and epigastric throbbings.

Looking on *mimosia acutus* as a disease essentially consisting in a semi-paralytic state of the ganglionic nervous system, its analogy to colica pictonum seemed very evident; and in connection with this analogy, the medicine that was found useful in the one disease, would naturally suggest itself, as being likely to prove beneficial in the other. Accordingly, he was led to exhibit alum in comparatively large doses, in cases of habitual costiveness accompanied by the symptoms described, and experienced its administration to be followed by advantages which could not be hoped for from the use of ordinary purgatives. It may appear paradoxical to give an astringent in cases characterized by constipation, but in the treatment of every disease, we should as far as possible ascend from the consideration of symptoms, to a contemplation of the lesions upon which they depend.

Combined with magnes. sulph. he has found that the disagreeable taste of this salt is greatly disguised, while the tendency of the saline purgative to increase the formation of gas is controlled. In the dose of ʒj. or ʒss. alum by itself will produce large and very solid evacuations. The contraindications to its use are of course the existence of gastro-enteritis.

For private practice, the following formula may be employed :

R Infusi rosarum, ʒviij.; sulphatis magnesice, ʒj.; aluminis, ʒij. Mss. Sumat cochlearia duo ampla cum aque cyathis vinariis duobus, primo mane quotidie.

R Infusi rosarum, ʒviijss.; aluminis, ʒij.; tr. cardam. comp. ʒss.; mss. St. cochlearia ampla duo, ter die.

Part xii., p. 12.

Ox-gall in Constipation during Pregnancy.—Dr. Allnatt reports the case of a patient of his three months advanced in her first pregnancy. She was habitually constipated, but at this time the stomach became so irritable as to reject all aperients which were given her. Warm water enemata also failed in relieving the bowels. Dr. A. adds :

I then resorted to the inspissated ox-gall, a drachm of which I directed to be dissolved in about a pint of warm water, and used as an enema. The relief was instantaneous; a mass of scybala being expelled which had evidently lain impacted in the colon.

Part xiii., p. 100.

Constipation.—When it arises from obstruction near the junction of the ileum with the cæcum, inject air into the bowels.

This plan of treatment, Dr. Chevers observed, was recommended by an American writer, and had often been employed with success in the same susception of children.

Part xiii., p. 101.

Accumulation in the Colon.—In ordinary cases, the best evacuant of the colon, in its loaded and preternaturally offensive state, is a bolus at night, of blue pill, aloes, and myrrh, followed, next morning, by a dose of castor oil, with or without a turpentine enema. Turpentine has a most cordially stimulating and corrective effect in loaded, torpid, fœtid, and flatulent states of the cæcum and colon. In some cases it is necessary to repeat the above bolus, on alternate nights, for a week or ten days, before the desired subsidence and softness of the abdomen, in the track of the cæcum and colon, are obtained; by which we are assured that the great bowel is disencumbered of long-formed accumulations. A course of vegetable bitters and laxatives, such as aloes and taraxacum, and injections of cinchona and oak-bark decoction, are simultaneously to be employed.

Part xv., p. 114.

Hints on Constipation.—In all cases of constipation or torpor of the bowels, attention to the cæcum is important. It is here that fecal accumulations are, on several accounts, apt to take place. The circumstance of the large bowel here forming a cul de sac, out of which, moreover, the fecal matter, during fourteen or sixteen of the twenty-four hours, can only escape by a course counter to gravity, disposes not a little to the collection there of excrement.

There is no doubt that, in not a few cases, a state of chronic irritation, of (sub-) inflammation, and even of ulceration of the mucous membrane of the cæcum, is induced, from the prolonged contact of hardened feces, which, moreover, has become preternaturally fœtid, and undergone certain irritating chemical decompositions. In such circumstances, either round

or irregular masses of a fatty-looking substance may often be detected in the evacuations. This consists of inspissated mucus, secreted by a surface highly irritated or sub-inflamed. A slight prolongation or increase of such irritation will convert this inspissated mucous discharge into a purulent one.

The fact of accumulation in the cæcum being ascertained, a bolus or pills, containing ten or fifteen grains of blue pill, aloes, and hyoscyamus, in equal parts, are to be given at bed-time, on one, two, or three alternate nights. Next morning, a dose of castor oil is to be taken, and means afterward are to be used, both dietetic and purgative, to keep the bowels patent, and prevent a recurrence of the impaction of the cæcum. Injections are of much use in this complaint, though only, indeed, of temporary utility. They should be of an oleaginous quality, and be large in quantity, and either during, or subsequently to, their being administered to him, the patient should lie on his right side, so as to promote the passage of the injection to the ascending colon and the cæcum. The right groin should be gently, but effectually, kneaded, as it were, by the hand of the patient himself, or of an assistant. In this way, lumpy masses of feces which had obviously accumulated in the cæcum, may often be brought away, to the great relief of the patient. A tablespoonful or two of oil of turpentine added to the injection, adds much to its efficacy. This oil seems to exert a most salutary influence on the colon. *Part xv., p. 115.*

Constipation—Habitual in Young Persons.—There is a form of constipation which occurs in young persons, and is the result of dryness and solidification of the fecal matters from active absorption in the small intestines.

First try dietetic means; barley and oatmeal porridge, brown or rye bread, plenty of green vegetables, fruit, and lemonade or cider. In addition to these means, give clysters of warm water, or of gruel with castor or olive oil, or turpentine. If these fail, give purgatives which act on the lower bowel; aloes, with myrrh, or galbanum, and sulphur, and next to these, castor or olive oils. Or give Pullna, Seidlitz, Vichy, or Aix-la-Chapelle waters. To children give phosphate of soda, which may be added to soup, instead of salt. Purgatives should be taken not once, but several times in the day, directly before, or during, or soon after the principal meals. *Part xvi., p. 152.*

Constipation.—When dependent upon loss of tone in the muscular fibres of the bowels, give acetate of lead, three grains, with one-sixth of a grain of acetate of morphia, every four hours, and a turpentine enema every evening; or sulphate of zinc with opium may be tried. *Vide Art. "Flatulence."* *Part xvii., p. 114.*

Ox-gall in Constipation from Impacted Fæces.—When there are hard impacted feces, give eight grains of inspissated ox-gall thrice a day, and enemata of diluted gall to the amount of two quarts, night and morning. *Part xvii., p. 115.*

Employment of Nux Vomica in Habitual Constipation.—[Observing a recommendation of the extract of nux vomica, in habitual costiveness, Mr. Boulton was led to give the alcoholic extract in doses of half a grain thrice a day, to patients of costive habits, with but slight effect. He says:]

I was then led to add the same quantity of the extract (half a grain) to a pill containing aloes, rhubarb, and scammony, and was surprised at the result. I found that this drug has the power of increasing very sensibly the activity of purgative medicines. I ascertained that an aperient scarcely sufficient by itself to produce a single evacuation, when combined with this extract, caused active purgation. The dose must be varied according to the patient's idiosyncrasy, but, generally speaking, a pill containing three-quarters of a grain of Barbadoes aloes, three-quarters of a grain of extract of rhubarb, and half a grain of the extract of *nat. vomica* (*Pharmacopœia Edinensis*), if taken at bed-time, will produce one, or perhaps two, full evacuations the following morning. The addition of a single grain of calomel to this pill will cause two or three *bilious* motions, thus showing that the drug possesses not only the property of stimulating the muscular fibres of the bowel, but also the power of increasing the activity of medicines that affect the secretions.

There is an observation to be made with regard to the employment of this medicine, in order to prevent disappointment to those using it. It is essential that the extract should be *good*. Alcoholic extracts are troublesome and expensive to make; this preparation is particularly so, and consequently the common article of commerce is not always to be depended upon.

Part xviii., p. 118.

Uses of Electricity.—In constipation from *paralysis* of the intestinal canal, employ galvanism. Bring the conductor from the positive pole in contact with the tongue, and place that from the negative pole, previously covered with a thin piece of cloth, in the rectum, and pass a current through them for about twenty minutes. The patient may not be able to bear a battery of more than about eight pairs of plates.

Part xxi., p. 65.

Use of Calomel.—The best way of giving calomel as a purgative, is to mix it with a little table salt, and place it dry upon the tongue; it must not be combined with any other purgative, and the patient must abstain for some time from taking water and other fluids.

Part xxi., p. 151.

Aperient Solution.—Professor Mattauer, in an article on constipation, speaks in the highest praise of the following aperient solution: *R* Aloes soc. ℥iiss.; sodæ supercarb. ℥vj.; aquæ Oiv.; sp. lavend. co., ℥ij. After digesting for fourteen days, the clear liquor may either be decanted off or allowed to remain. Age improves both the taste and power of the solution. It should be given about half an hour after dinner, and supper. The common dose is ℥j. although it may be increased to ℥j.

Part xxiii., p. 300.

Tartrate of Soda as a Purgative.—M. Delioux recommends the crystallized tartrate of soda as a most agreeable and certain purgative, being quite equal in power to the sulphate of soda or magnesia, and not repugnant to the taste. The medium dose for active purgation, is ten drachms, little or no colic attending its action. The sulphate, phosphate, and tartrate of soda, and the tartrate of soda and potassa, may indeed be substituted for each other as regards their purgative action; but the tartrate of soda surpasses them all in pleasantness of taste.

Part xxv., p. 122.

Calomel and Soda as a Cathartic.—Give two grains of calomel with

ten or twenty grains of bicarbonate of soda. After the bowels and liver have been well acted upon, the medicine loses its power and should be discontinued. The soda seems to exert some influence in preventing the mercury acting upon the gums. *Part xxvi., p. 325.*

Formula for the Administration of Elaterium.—The following prescription, copied from the Pharmacopœia of the London Hospital, is a very convenient one for the administration of elaterium:

R Elaterii extract. gr. iss.; pulv. capsici gr. vj.; hydr. chlorid. gr. xij.; ext. gentian. 3ss.; sacch. facis q. s. Ft. pil. xij. Sit dosis j. vel ij.

If needful, the proportion of elaterium may be increased to 2 or 3 grains, according to the wishes of the prescriber. The capsicum is of the greatest use in preventing the distressing nausea which elaterium often causes. *Part xxxi., p. 307.*

Nux Vomica in Constipation.—In obstinate cases of this kind you will find the following a very capital pill: Half a drachm of extract of henbane, one scruple of extract of colocynth, and three grains of extract of nux vomica, made into twelve pills, one to be taken night and morning. *Part xxxiv., p. 101.*

Constipation in Children.—The chief cause of constipation in nurslings is the insufficiency of sugar in the breast-milk. Speedy and full relief may generally be given by ordering some sweet sugar water to be taken every day besides the breast. *Part xl., p. 322.*

CONVULSIVE AFFECTIONS.

Compression of the Carotids in Convulsive Affections.—The following cases illustrate the method of treatment:

The first of these cases was that of a man 24 years of age, strong and vigorous, who had been subject to epileptic attacks for 5 years, and which were of daily occurrence, sometimes lasting two hours, and very violent; the compression of the carotids at the commencement of the attack always caused them to cease a minute afterward. The second case was that of a young person 15 years of age, epileptic from infancy, occurring every second day, and of six hours' duration. The convulsions were confined to the right side of the face and the upper extremity of the same side. In this case he only compressed the left carotid, and the success was equally marked as in the former. It is necessary, adds M. Stroehlin, that the compression should be as circumscribed as possible, so that the returning current in the jugular vein be not interfered with. M. Stroehlin refers to cases where ligature of the carotid has been applied for the cure of epilepsy, for tumors of the face, for wounds of the artery itself; in which latter case the patient had been previously epileptic, but when the operation was concluded the convulsive affection disappeared. *Part iii., p. 61.*

Oxide of Zinc in certain forms of Convulsions.—The good effects of oxide of zinc in cases of convulsion resembling epilepsy are brought forward in an interesting case by Dr. Hennis Green. He gives it in two grain doses twice a day; the doses to be increased two grains every day.

In the case which Dr. Green relates twenty-four grains daily were given with great success. The fits, which occurred frequently before, now disappeared, and did not return till the remedy was discontinued; on resuming the medicine the fits again disappeared as at first.

Part iv., p. 31

Infantile Convulsions treated by Ice to the Spine—Case.—The child, which gave rise to the following observations of Dr. Todd, was convulsed before admission into the hospital. When admitted, the following were the symptoms:

Total absence of consciousness; powerful convulsive twitchings of the flexor muscles of the right side, and also of the muscles of the face on the right side; internal squinting; pupils natural; respiration heaving and difficult; deglutition impossible; action of the heart very rapid. Such are the symptoms—they were symptoms of irritation—and the first inquiry the medical man should be, What is the cause of the irritation?

The convulsions continued in spite of the usual treatment. The gums were freely lanced; the warm bath, a turpentine enema, cold to the head, leeches, etc., were in vain tried. Mr. Pincoff, the resident assistant, suggested the application of ice to the back of the neck and spine, and the view of calming, by the sedative agency of cold, the irritable state of that portion of the cerebro-spinal axis which he rightly judged to be affected, the medulla oblongata and spinalis." The happiest results followed.

Ice was applied in an ox-gullet along the course of the spine, extending from the occiput to the sacrum. Immediately on its application, as breathing became easier, the child sighed several times, the pulse fell rapidly, and in ten minutes the convulsions had entirely ceased.

He would, however, impress that it would not have been good practice to have applied the ice, unless the gums had been previously freely satisfied, and means used to clear out the bowels.

Part v., p. 11

Rapid Vesication and Counter-irritation by Burning Ether, &c.—In cases which require very rapid and energetic counter-irritation, the practice of Mr. Edwards may occasionally be resorted to—viz.: that of rubbing ether, spirits of wine, or any other spirituous application on the part intended to be blistered, and then setting fire to it; in short, or another way of applying the actual cautery. In one case of the convulsion, Mr. Edwards says:

As a last resource, I rubbed the spine with gin, from the cervical to the lumbar region, and set it on fire; in less than half a minute the convulsions ceased. The boy was now put into a blanket, carried to bed, purged freely, and in a few days was convalescent; he was about eight years old.

Part v., p. 20

Use of Indian Hemp in some Convulsive Disorders.—Mr. Ley relates some good cases in which it was very useful. In a case related by Mr. Ley, in which the slightest motion was attended with great pain and spasms of the muscles of the back, the latter being so violent as to draw the body into the form of an arch, it produced a remarkable degree of relaxation of the muscles. He gave a grain and a half of the extract every half hour, and its effects were strikingly evident after the fifth dose; the muscles became relaxed, and the patient fell into a tranquil, but overpowering sleep of ten hours' duration; she then awoke with little exhaus-

tion, and pleased beyond expression at the relief she had received. In a case of chorea, in a girl twelve years of age, Mr. Ley gave half a grain of the extract three times a day for three days, when the girl was overwhelmed with fear, the muscles, which had been affected with rigid spasm, became relaxed, the power of speech returned, and at the end of a week or ten days she was perfectly recovered. But although relaxation of the muscles followed the exhibition of the medicine in all cases, it did not always effect a cure of the disease which produced the muscular spasm. It generally, however, produced an alleviation of the painful symptoms. In a case related by Mr. Ley, in which a coachman, by the constant use of his arm, presented a swollen, hard, and stiff state of the muscles of that limb, with an enlarged bursa on the olecranon, three grains of the extract caused a wonderful abatement of the symptoms by the next morning, together with considerable diminution of the enlarged bursa. In another case of severe sprain of both wrists, in which the patient had lost the grasp of his hand, and where the wrists were distended with very much fluid, both in the joint and under the flexor tendons, a grain of the extract was given three times a day for three weeks with considerable relief. In a case of the *crowing-respiration* in a child nine months old, the sixth of a grain of the extract was given, and the little patient fell into a tranquil sleep, and on awaking had not its usual spasmodic attack; the dose was continued three times a day for a week, with very considerable benefit.

Part vi., p. 27.

Mustard in Infantile Convulsions.—Dr. Tripler treated a case of convulsions from teething with mustard, which he employed for its emetic effects—he had previously employed antimony, sulphate of zinc, sulphate of copper, and the usual emetics, but without being able to make any impression on the stomach. In a few minutes after its employment it arrested a fearful attack of convulsions, which had lasted five hours, and that without vomiting the patient for some time afterward—he afterward used it in several other cases, and with equal success. Its efficacy seemed to have no relation to its emetic properties.

Part x., p. 31.

Source of Convulsions.—Mr. W. King points out the intimate connection which exists between the *pons varolii* and the whole muscular system, by reminding us that at this point all the motor tracts converge, and by one thrust into this portion we may stir up every muscle of the body. Disease may exist and advance to a considerable extent in some portions of the brain, without producing very evident symptoms; but as soon as the mischief approaches the *pons varolii*, the case becomes no longer doubtful. A tubercle may increase to a considerable size without exciting suspicion till it approaches this part, when convulsions more or less severe will come on.

Part xi., p. 21.

Convulsive Diseases—Of Children.—Scarify the gums deeply, freely, and repeatedly; empty the stomach by tickling the throat, or by giving a dose of ipecacuanha: give large warm water enemata, and afterward mild aperients, especially antacids, such as one-fourth bicarbonate of potash and three-fourths of carbonate of magnesia, in an aromatic vehicle. Preserve the child with the utmost care from the slightest mental emotion: surround the bed, in cold weather, with three curtains of gauze or net, at intervals of a foot, and keep the atmosphere moist, and at 65°. Get a new

and healthy nurse, or feed the child on ass's milk. If general convulsions have occurred, direct the treatment to preventing congestion in the cerebrum: leeches, purgatives, mercurials, alcoholic lotion to the head, and warmth to the feet, etc. If the larynx is closed, dash cold water on the face; and if asphyxia has taken place, excite respiration by compressing the chest and abdomen, and then suddenly removing the pressure.

Part xvi, p. 75.

Pathology of Convulsive Diseases.—Under the general term *convulsion*, Dr. Todd includes all those irregular actions of sets of muscles which are wholly unrestrainable by the influence of the will, and which are excited and kept up by a physical irritant.

Under this definition of the word convulsion he refers to three distinct kinds of convulsions, each of which denotes a different cause, and is produced by an affection of the nervous system distinct in kind as well as in position. These are the jactitating, or chorea-like, or choreic; tonic, or tetanic; clonic, or epileptiform.

Dr. Todd observes: Of all the movements which accompany chorea, that of the tongue is the most peculiar and characteristic; indeed I would call it pathognomonic. The patient protrudes the tongue with a peculiar thrust to the fullest extent of which it will admit; frequently this is done by one effort, at other times it requires two or three attempts before it can be accomplished. And the subsequent retraction is also peculiar; the tongue is drawn back, supported and guided by the pressure of the teeth, and often very slowly and with great caution. Sometimes this peculiar mode of protrusion of the tongue is the precursor of the other choreic symptoms; and if we had frequent opportunities of seeing the cases very early, I have no doubt that this symptom would be found more frequently the harbinger of the more extensive affection. I have from this symptom only, been able to predict with accuracy that an attack of chorea was coming on.

[Paralysis frequently succeeds to the choreic convulsion. It sometimes precedes it, but it is then accompanied, Dr. Todd says, by the peculiar and pathognomonic thrust of the tongue. Dr. Todd observes:]

That paralysis may occur in this way is evidently a fact of the highest practical interest, whilst it is not devoid of importance as bearing upon the pathology of the disease. Nevertheless, I do not find it noticed in any of the descriptions of the disease in the practical works which I have consulted. The previous history of the case, the absence of any other symptom referable to the head, and the gradual mode of invasion of the paralysis, in addition to the peculiar mode of protrusion of the tongue, will always enable the careful practitioner to distinguish this paralysis from that caused by cerebral lesion. The heart is very frequently morbidly affected in chorea; and this morbid affection shows itself, not in any disturbance of the *rhythm* of the heart, which, so far as my observation extends, never is disturbed, but in a derangement of its sounds. A bellows sound is frequently present, and is either aortic systolic, when it is almost always an accompaniment of the anemic state of the patient, but *much more frequently it is mitral systolic or regurgitant*.

[Turning now to the second class of convulsive diseases, Dr. Todd makes a few remarks on tetanus. The points to which he refers are the little variation of the symptoms, the want of post-mortem appearances,

and the curious fact of the endemic appearance of the disease. Respecting the cause of death in tetanus, Dr. T. observes:]

The tendency in tetanus is to death by exhaustion and asphyxia. The frequent return of the attacks of spasm, affecting all the muscles of the trunk, have a most exhausting influence upon the patient; and as the respiratory muscles, and even the muscles of the larynx, are generally more or less involved, the respiratory functions become seriously impeded. Hence, the most fatal sign is a rapid recurrence of the convulsive attacks, and the most auspicious sign is the prolongation of the intervals between them. Practically the disease should be regarded as one of extremely fatal tendency, and therefore requiring the diligent interference of art to counteract its debilitating influence.

Dr. Todd classes laryngismus stridulus with the tetanic diseases.

[Dr. Todd next speaks of epilepsy, and classes with it the convulsions of children, convulsions induced by the retention of urea in the blood, and puerperal convulsions. The latter are truly epileptic, but the convulsions of children have sometimes more or less of a tetanic character. Infantile convulsions are often caused by the presence of a morbid poison in the blood; and such cases as these form a connecting link with the convulsions of renal disease. Upon this subject, Dr. Todd observes:]

So excitable is the nervous system of children, that the development of a fever, especially if caused by the introduction of a poison, is very apt to be ushered in by convulsions, which sometimes prove fatal, and certainly will be more likely to prove fatal if the treatment be conducted with the idea of suppressing the present evil, neglecting to look to what the child has to undergo after convulsions have ceased. All practical men are familiar with convulsions in connection with the early development of small-pox, measles, and especially of scarlet fever. An artificial epilepsy may be produced by the administration of certain poisons; as the aconitine, crocata, conium and prussic acid. In poisoning by this latter substance, the epileptic convulsions are frequently complicated to a very great extent with those of the tetanic kind.

These facts prepare us for the doctrine that the retention of certain important excretions in the blood, which their proper organs are incapable of eliminating, favors the development of a state exactly resembling epilepsy in the phenomena of the convulsive fits. When the liver or kidney are in such a state that the elements of the bile, or those of the urine, are not separated in their normal quantity, the patient is very apt to have several convulsive fits, which often terminate his existence. Renal disease is a much more fruitful source of convulsions than hepatic, and the form of disease in which they are most apt to occur is in that small contracted kidney, which by some is regarded as a stage of Bright's disease, but which, in reality, is a special morbid state of the kidney, a chronic nephritis, frequently produced by gout, and, therefore, forming the finale of many a gouty patient's career, but often resulting from other causes. In this state of kidney, the gland has shrunk chiefly at the expense of the cortical substance; the growth of epithelium (the immediate agent in the separation of organic products) is greatly impaired, many of the renal tubes are stripped of it, and no development of epithelium at all takes place in them. Hence, while in many of these cases water is freely eliminated, and even a diuresis takes place of a urine pale, and of low specific gravity, the organic products, urea and uric acid, accumulate in the blood, and

act, especially the former, as a poison to the nervous system. Any state of kidney, however, if it be unfavorable to due elimination, may give rise to these symptoms; and accordingly I have seen them in that acute affection of the kidneys which is associated with inflammatory dropsy, and with drops after scarlet fever, to which Dr. Geo. Johnson has given the appropriate name, *Desquamative nephritis*; and also in fatty disease of the kidney, where the accumulation of fat has taken place to such a degree as enough to congest the Malpighian bodies, and to interfere seriously with elimination. *Part xix., p. 6.*

Convulsions in Children.—Use warm water injections to a great extent, even in infants (twenty-four ounces of warm water have been injected into an infant). The convulsions will often cease on the injection of the first few ounces, but may return again and again, until the bowels have been well washed out. *Part xxxi., p. 6.*

Infantile Convulsions.—In cases of convulsions which seem to exist and continue without any acute or appreciable morbid action or lesion in the nervous centres, and without any recognizable point of irritation in the peripheral parts, Dr. Simpson highly recommends the use of chloroform. Several interesting and successful cases are related by him; in one case the inhalation was continued twenty-four hours, except when it was necessary to feed the child; in another case it was found necessary to keep the child, more or less, under the influence of chloroform for fourteen consecutive days, before all tendency to recurrence of the convulsions was eradicated. Chloroform probably acts as an antidote to that state of super-sensibility of the spinal system, which constitutes the essential pathological state upon which convulsions depend. *Part xxxviii., p. 30.*

COPAIBA.

How to Make Copaiba into Pills.—Take balsam of copaiba, five parts. bicarbonate of magnesia, three parts. Rub them together, and a mass is made exactly adapted for pills.

This affords a very convenient means of administering this drug; the pills agree with the stomach better than the gelatinous capsules, or any other form. *Part iv., p. 11.*

Copaiba Sugar Plums.—Take balsam of copaiba, 400 grains; calcined magnesia, 18 grains. Intimately mix these ingredients, and in about twenty-four hours the mass may be divided into seventy-two parts, which are to be rolled out between the fingers. These are to be covered with gum and sugar prepared in the following manner: 1st. A solution of gum arabic, containing a third of its weight of gum; 2d. White sugar in powder. Put the copaiba pills into a tinned basin, of a hemispherical form; pour in a little of the solution of gum to moisten them; then add some of the powdered sugar, and turn the basin so as to get the pills covered all over; repeat this operation three times, and afterward place the sugar-plums on a horse-hair sieve, in a stove heated to 77° Fahr. The temperature of the basin, during the covering of the pills, should not be above 60° Fahr. *Part ix., p. 73.*

Copaiba in Inflammation of the Mucous Membrane.—At a meeting of the Medical Society of London, Mr. Roberts related a case of nephritis, in which, after bleeding and the ordinary treatment of that disease, some inflammatory symptoms still remaining, and suppression of urine more particularly, he exhibited copaiba in ten drop doses three times a day, with the effect of restoring the secretions.

Part xiv., p. 73.

To cover Pills or Extract of Copaiba with Gelatine.—This process, invented by M. Garot, is exceedingly easy and practical, and it much more effectually disguises the taste and odor, and interferes less with the solution of the medicine than the method of gilding or silvering usually practised. It is applicable to every substance capable of a pilular consistence; such as balsam, camphor, musk, assafetida, mercurial and ferruginous preparations, etc. Two hundred pills can be coated with gelatine in an hour, and will be ready for use after the lapse of two hours. The pilular mass so coated remains soft for a much longer time than according to any other plan. The process is as follows: Fix the pills on long fine pins; plunge them into thick purified glue placed in a hot water bath; then remove them by a rotatory motion, and stick the pins in paste spread out on a slab, so that the pills may remain elevated in the air; as soon as fifty are thus treated, rotate them individually in the heat of a taper, to harden the external pellicle; pull out the point of the pin, and the process is complete.

Part xiv., p. 133.

Copaiba, Mode of Administering Balsam of.—Thirty parts of the balsam are stirred round in a glass mortar with four of sulphuric acid. The mass quickly solidifies, and may be made into pills, which may be afterward covered with a coating of gum and sugar. If the copaiba be adulterated with castor oil, the solidification does not take place; while, if adulterated with turpentine, although solidification does take place, the mass, when placed in water, becomes covered with a white, bitter resinous substance. The medicinal virtues of the copaiba are by no means impaired by the above proceeding, while its disagreeable flavor is destroyed.

Part xxv., p. 353.

Copaiba, Substitute for.—Wood oil, or gurjun balsam, has been recently imported in considerable quantities from Burmah, and sold for copaiba. Dr. O'Shaughnessy says that it is nearly equally efficient with copaiba in the treatment of disease. It may be given in doses of from ten to thirty drops.

Part xxxiii., p. 244.

Mode of Action of Copaiba.—Recent experiments and observations have sufficiently proved that the active principle of the balsam is chiefly eliminated by the kidneys, and exerts a healing influence on the inflamed mucous membrane of the urethra, by coming directly in contact with it dissolved in the urine.

If further proof were needed that copaiba exerts its therapeutical influence by acting locally on the mucous membrane in gonorrhoea, it might be found in the admitted inutility (by Ricord, Sigmund, and numerous other high authorities) of the drug in those cases of gonorrhoea in the female, in which the disease is confined to the vagina, and does not affect, to any great extent, the urethra, and the parts surrounding it.

Part xxxii., p. 181.

CORNS.

Treatment of Sinuses when situated under Corns.—Dr. C. Hawkins, in one of his clinical lectures, relates the following case :

T. N., æt. 43, admitted with a sinus at the under part of the right heel, leading deeply down toward the under part of the os calcis; a probe passed along it does not strike on exposed bone. The skin and parts around the sinus are very much thickened; the surface of the cavity is pale and without granulations. It came from cold, sixteen or eighteen months ago, as a small hole in the skin, with discharge of matter.

Now, I believe that this has been, in reality, a case of suppuration in a bursa under a large corn; and, without being aware of it, you will easily fail to recognize such a case; and yet you see, by this man's abscess, which burst a year and a half ago, that there must be some reason for so long a cavity not healing in this time; and this reason is the peculiar nature of the bursa, which is incapable of forming granulations; and here, as the orifice is larger than usual, you can see the inner surface, which is pale and thin, and white. Such a bursa not unfrequently forms under a corn to defend the ligaments and joints from its pressure, either in this situation, or under the ball of the great toe, or under the metacarpal joint of the little toe; and is liable to suppurate, and discharge by a small orifice with a hard margin; on inserting a probe, you occasionally find that a ulceration has extended in the contrary direction also, and has destroyed the periosteum of the bone, or has even opened a joint, so that bone is exposed by the probe, which exfoliates, or the joint is ultimately quite ankylosed. A similar appearance is thus produced to what you can see in another patient admitted on the same day, with ankylosis of a part of the joint of the metacarpal bone of the great toe with the first phalanx, while no bone is felt in both of the exposed surfaces.

What I have found it necessary to do, in such a case as this, is to enlarge the orifice, and, if it is necessary, destroy the whole of the inner surface with strong nitric acid, inserted by means of a little sharpened piece of wood; then you will succeed in procuring a granulating surface, and you can afterward apply common remedies—red precipitate, solution of caustic or copper, and so on. You should, at the same time, cut away as much of the thickened cuticle or corn as you can from around the opening. The nitric acid gives little pain to the bursal surface, and is quite efficacious in general. If the cavity or sinus is close to the bone, or to a joint, you must apply the caustic somewhat carefully, in order not to affect these parts; or if the bone is already denuded, the acid may be applied to the surface also, and, partly by its stimulant quality, and partly by its chemical action on the bone, this part will probably be absorbed, or become bony and heal up.

Part x., p. 171

Corns cured by the Tincture of Iodine.—Painting inveterate corns with tincture of iodine three or four times a day, with a camel's-hair brush, will remove them in a very short time. When the corns are situated between the toes, the tincture should be mixed with glycerine, and the resulting fluid be spread on some German tinder, which latter is then placed between the toes.

Part xxxviii., p. 172

COUP DE SOLEIL.

Coup de Soleil.—Apoplexy and coup de soleil are not identical, or even including the same conditions of body, and consequently quite different treatment is required. True, there are symptoms of congestion of the head, or rather stagnation of the capillary circulation; but these are the effects of nervous depression from exhaustion, and will not be relieved but aggravated by lowering remedies. The best treatment is to unfasten as gently as possible the man's dress and accoutrements, expose the neck and chest, get him into the shade if possible, raise his head a little, commence cold affusion over the head, chest, and epigastrium, continuing this at intervals till consciousness returns. A mild stimulant mixture must now be given in small doses. Clothing for troops, whilst in tropical parts, should be suited to the climate: for the head, a light woollen forage cap, with a good peak, and protected by a good turban, the curtain extending more than it does on each side to protect the temples. No stock is admissible. The frock and trousers should be of some light woollen texture, and loose, except round the ankles. Flannel should be worn next the skin, and even in the hottest weather a good blanket should be taken for the night, which is always excessively chilly. *Part xxxvii., p. 260.*

Sun-stroke.—Probably sun-stroke is attributable to the functions of all the organs that free the blood from those matters that are injurious to the system being entirely or partially suspended, viz., the lungs, liver, kidneys, and skin. The blood is imperfectly oxydized, the bowels are confined, the liver torpid, the secretion of urine much diminished, and the skin hot and dry—the patient usually not having perspired for some days previous to the attack. No doubt this state of body is attributable to complete exhaustion following over-stimulation of the nervous system. *In the treatment,* rouse the patient as much as possible; administer brandy, wine, or ammonia, liberally; dash cold water from a height over the head and nape of the neck. Calomel and croton oil should be administered, to act on the liver and move the bowels. Stimulant enemata and mustard cataplasms sometimes prove useful. The after-treatment must consist of nourishment and stimulants, together with cold applications to the head, blisters to the nape of the neck, and acting on the liver and bowels. The head-dress at present worn in India affords no efficient means of ventilation—the crown rests on the top of the head. It should be of thicker material, and made of strong, close basket-work, well padded, and should afford cover for the nape of the neck, and shade for the eyes, and be sufficiently strong to permit of its use as a support for the head when the owner is in the recumbent position. *Part xl., p. 300.*

CORYZA.

A full opiate recommended immediately in cases of *coryza*, or cold in the head. Also copious perspiration, kept up by warm drinks and ample clothing. Diet should be light. Ten grains of Dover's powder may be given every hour. *Part iii., p. 45.*

Coryza of Children.—[This name is given to an affection of the mucous membrane of the nose in children, which differs from the common coryza, or "snuffles," in the graver character of the symptoms. There is abundant secretion of very tenacious mucus, or even of false membrane, in the nasal passages, sometimes extending even to the tonsils and palate. As the respiration through the nose is impeded or altogether prevented, the child cannot suck; and from the mouth being kept constantly open, the tongue and throat become dry, and deglutition is difficult. There is also usually extreme depression of the vital powers. These cases occur chiefly in the continental foundling hospitals, but they are sometimes met with in this country. In a case which came before Dr. West, as a complication of scarlatina, the Dr. tells us that,]

A lotion was injected up the nostrils, composed of ʒj. of alum to ʒij. of water, with great relief to the child, the secretion from the nares becoming more decidedly puriform, but less adhesive; and the child became able to suck a little. Subsequently, however, the child's powers seemed much depressed; it sucked eagerly, for the secretion from the nose had become almost watery, but it swallowed with much difficulty. A layer of false membrane of a yellowish-white color had now appeared on the soft palate and back of the hard palate, and on the tonsils.

A lotion of three grains of the nitrate of silver to an ounce of water was applied to the back of the throat, and a mixture of the extract of bark with ammonia was given every six hours. The child improved, could swallow as well as suck well, and the false membrane entirely disappeared from the mouth, but the palate was still red, and presented some broad superficial patches of ulceration. The subsequent recovery was tardy, but the immediate danger was over, and no relapse occurred.

In the *simple coryza*, no treatment is required beyond giving a mild diaphoretic with a little vin. ipecac., attending to the state of the bowels, and preventing the accumulation of the secretion at the opening of the nostrils. If there is much difficulty in breathing, do not let the child attempt to suck, but feed it with mother's milk by means of a spoon. In the *malignant* variety of the disease, keep up the strength by tonics and support, and inject a lotion with a drachm of alum to two ounces of water, or three grains of nitrate of silver to an ounce of water, into the nostrils, or apply it to the throat. If a mild catarrh continues long, it is probably syphilitic, and requires small doses of hydr. c. creta. *Part xvii., p. 70.*

Cold in the Head.—It is a practical fact, not half so generally known as it deserves to be, that the common cold in the head, however severe, may be at once relieved by guaiscum. *Part xiv., p. 60.*

COUNTER-IRRITANTS.

Advantages of a High Temperature in the Preparation of Blistering Plaster.—M. Donovan believes the common opinion to be erroneous, that blistering-plaster is injured by being heated, and authorizes the following process:

Introduce the resin and fats into a proper vessel; melt them; throw in

the powder of cantharides; stir the mixture continually until a thermometer immersed in it indicates that the temperature has risen to 250°. Remove the vessel from the fire, and, if the cantharides are not to be strained off, continually stir the ointment. By these means, all the water will have been expelled from the fats, the resin, and the cantharides; and a plaster will be obtained much less liable to injury from being kept than the common.

The employment of a high temperature in the preparation of blistering-plaster, has several beneficial effects. It causes the solution of the vesicating principle in the fats, thus producing a blister more certain in its operation. It expels the water which naturally exists in all the ingredients of blistering-plaster, and endangers its spoiling, if long kept.

M. Donovan alludes to a method of obviating strangury arising from the action of blisters. It consists in boiling cantharides in water previously to their being pulverized, and drying them. After this, it is said they no longer possess the injurious property. *Part ii., p. 74.*

Rapid Vesication by Burning Ether, etc.—Recommended in certain cases requiring very rapid and energetic counter-irritation, to rub ether, spirits of wine, or any other spiritous application on the part to be blistered, and then set fire to it. It is, in short, another way of applying the actual cantery. Case of convulsions cited, relieved in less than half a minute, by setting fire to some gin which had been rubbed on the spine from the cervical to the lumbar region. *Part v., p. 80.*

Counter-Irritants.—The following are the formulæ adopted by Dr. Turnbull:

TINCTURA CAPSICI CONCENTRATI.

R Capsici baccarum, ℥iv.; spiritus vini rect., ℥xij.; macera per dies septem et cola. (It may also be made with advantage by displacement.)

This concentrated tincture is used as an external application, and is found to be a powerful rubefacient and counter-irritant. Four grains of *veratria*, dissolved in an ounce of the concentrated tincture of capsicum, will be found as powerful in its effect as twelve or fifteen grains dissolved in alcohol.

PULVIS ALUMINIS ET CAPSICI.

R Aluminis sulphatis, partes tres; tinct. capsici concentrati, partem unum; misce et sicca.

A very small quantity of this powder, applied to the tonsils, is found more efficacious, in some cases, than an alum and capsicum gargle.

UNGUENTUM IPECACUANHÆ.

R Pulvis ipecacuanhæ, ℥ij.; olei olivæ, ℥ij.; adipis, ℥ss.; M. ft. unguentum.

UNGUENTUM EMETINÆ.

R Emetinæ, gr. xv.; sp. vini rect., q. s.; adipis, ℥ss.; M. ft. unguentum.

Dr. Turnbull states that he has found this ointment particularly efficacious as a rubefacient in pulmonary and rheumatic affections, producing little or no pain or inconvenience to the patient.

Part v., p. 84.

Blistering-Plaster.—In order to obtain a plaster more uniform in its

operation, Dr. Muller recommends that the cantharides be left to digest in the plaster, kept fluid at a moderate heat for five or six hours.

Part v., p. 53.

External Application of Croton Oil.—Whenever it is required to use this method of counter-irritation, M. Bonchardat strongly recommends a plaster which has been much used by M. Chomel at the Hotel Dieu, and which is thus prepared: Four parts of dachylon-plaster are melted at a very gentle heat, and while it is half liquid, one part of croton oil is mixed with it, and the mixture is then spread in a thick layer on calico. Pieces cut from this may be applied to the skin like ordinary sticking-plaster, and quickly produce an active irritation.

Part vi., p. 64.

Effects of Caloric applied to the Skin.—M. Gondret states that the flame of a burning match being instantaneously applied to the skin produces a sharp pain, which disappears as rapidly as it has been produced. This flame forms upon the skin a small reddish mark, which after a few days leaves no traces behind it. The instantaneous application of this flame almost always speedily dissipates a rheumatic, gouty, or any other kind of pain. He has also found this result in most kinds of chronic pains; and he further thinks that it might be advantageously employed in asphyxia, while waiting till more appropriate remedies could be adopted; he has in several instances more or less completely dissipated the pains and convulsive contractions of the *aura epileptica*, and prevented or considerably retarded the invasion of the epileptic attack by this means. The physiological effects of this agent have, he thinks, a great resemblance to those produced by electricity.

Part vi., p. 66.

Actual Caution.—As a means of producing counter-irritation, is considered too much neglected. *Vide Art. "Tibia."*

Part vii., p. 115.

Acetous Extract of Cantharides.—R Cantharides in coarse powder, 4 parts; concentrated acetic acid from wood, 1 part; alcohol of 0.87, 16 parts. Digest in the water-bath in a temperature of 48° to 50°, with pressure, filter, distill, and evaporate at a gentle heat. The product has a buttery consistence. M. Trousseau, who experimented with it, has been extremely well satisfied. It is only necessary to grease a little paper with this extract, and to apply it to the skin, to have in a very short time a blister formed. The consistence of this preparation, and especially the presence of acetic acid, prevent the crystallization of the cantharides.

Part viii., p. 79.

Method of causing Immediate Vesication.—This method, which M. Deaneq proposes to call *blistering by the watch-glass*, is effected as follows: Drop into a flattish watch-glass eight or ten drops of the strongest liquor ammoniac; cover the liquid with a piece of linen, its diameter rather less than that of the glass; apply the glass containing the linen to the skin, previously shaved, and keep it in its place by moderate pressure with the fingers. As soon as a red zone can be perceived round the glass, we may be certain that the vesication is completed; in most cases, thirty seconds are sufficient to obtain this result. There only remains, then, to remove the apparatus, wash the part, and take off with dissecting forceps the epidermis, which comes off easily and in one flake. The subsequent dressing may be varied according to circumstances, whether counter-irritation or the endermic administration of medicines be the object.

Part ix., p. 161.

Ezanthemic Liniment.—The following liniment is particularly recommended by Dr. Morris, when desirous of keeping up a mild rash upon the skin: R Ol. erot. M. xx.; antim. tart., ʒj.; liq. potassæ, 3j.; aq. puræ, 3vij. M., while Dr. Hannay, of Glasgow, considers ipecacuanha one of the most manageable and efficient applications. His formula is pulv. ipecac. ol. olivæ, aa. ʒij.; adipis suill. ʒss. M. It requires to be rubbed in for fifteen to twenty minutes, and is, he thinks, peculiarly adapted to cases of cerebral irritation in children, dependent on receded eruption.

Part xii., p. 254.

Ammonia as a Vesicant.—[The following is a recipe, with directions for the preparation of M. Goudret's ammoniacal vesicant ointment, called "Pommade de Gondret:"]

In summer, take lard, 8 drachms; oil of sweet almonds, 2 drachms; tallow, 4 drachms. Melt by a gentle heat, and pour into a wide-mouthed vial with a glass stopper. Then add 12 drachms of liquid ammonia at 27° or 28°; put in the stopper, and shake it up. It should be kept in a cool place; but as the temperature gets lower, put 2 drachms less tallow, and 2 more of lard. This pommade produces vesication in three, four, or five minutes.

Part xiv., p. 138.

"Firing," as a Counter-Irritant.—Sciatica, lumbago, chronic rheumatism, paralysis of the deltoid muscle, neuralgia and hysterical pains, are the diseases in which Dr. M'Cormack has found this form of counter-irritation serviceable.

Case.—The Rev. Sir Wm. M'C—, after a very severe exposure to cold and wet, awoke the following morning with that painful affection of the muscles called "crick" in the neck. The pain was so unusually severe, and the distortion so great, that he was induced to apply for relief, having in vain tried the usual domestic remedies of hartshorn and oil, hot stupea, etc. The head was drawn down more than I ever saw in a similar case, and the slightest motion caused the most acute agony. I persuaded him, after much entreaty, to allow the application of the "firing" iron, and before I had finished the operation (having made altogether about fifty touches) he was enabled to move the head freely in all directions; the pain entirely ceased, and the distortion was completely removed; and he was much delighted to find that he had got rid so suddenly, and with such little suffering (as far as the operation was concerned), of so painful an affection. *Vide Art. "Firing."*

Part xv., p. 82.

Mode of Producing Rapid Vesication.—[This is a new application of Mr. Markwick's Impermeable Piline.]

A liniment was prepared according to the following formula: R Liq. ammon. fortiss. 3j.; ol. olivæ, 3ij. Misc. Six drops of this liniment were applied to the woollen side of the piline, placed upon the skin, and gently pressed with a handkerchief. In ten minutes a perfect blister was produced, the size of a crown-piece. The piline is not in the least injured by such an experiment, and after being washed, may be used again, for the same or for other purposes.

Part xvi., p. 204.

Cantharidal Collodion for Blisters.—[M. Hisch, of St. Petersburg, recommends the following preparation as a vesicatory, when it is needed to apply one where it will not be disturbed by the movements of the patient:]

The cantharidal collodion is thus prepared: Exhaust, by the displacement process, one pound of coarsely powdered cantharides by one pound of sulphuric ether and three ounces of acetic ether; in this way is obtained a saturated solution of cantharides, along with the green animal fatty matter. Dissolve twenty-five grains of cotton-powder in two ounces of the liquid, and preserve it for use, in well stopped bottles. When a blister is required, it will be sufficient to smear with this fluid the surface to be treated.

Part xx., p. 287.

St. John Long's Celebrated Liniment.—The yolk of an egg; oil of turpentine f ʒiss.; strong acetic acid, f ʒj.; pure water, f ʒijj.; first rub the yolk of egg, the water and the acetic acid together, then add the oil of turpentine, and agitate the whole until they are well mixed. This counter-irritant liniment is applied by means of a sponge; its effects vary with the force which is used in rubbing, and the length of time the application is continued.

Part xxxii., p. 298.

Blistering Plaster prepared with Chloroform.—Dr. Landerer, of Athens, recommends, as an improved mode of making blistering plaster, the preliminary digestion of the powdered cantharides for several days at a gentle heat, in a sufficiency of chloroform to moisten it. The mass is then to be added to the plaster half cold, taking care to avoid inhaling the chloroform, which becomes volatilized.

Part xxxiii., p. 291.

COUGH.

Cough.—[Cough is “a sudden convulsive expiratory effort.” Irritation of any kind upon the pulmonary mucous membrane will produce cough; irritation of the nasal mucous membrane will produce sneezing, another expulsive effort. It should be observed that the nasal branch of the mucous membrane is supplied by sentient branches of the fifth nerve, while the pulmonary surface is supplied by branches of the vagus; and it has been proved that irritation of the vagus, in any part of its course, will produce cough similar to that which occurs in any disease of the respiratory organs.]

A common cause of cough—a much more common one than is generally supposed—depends on irritation of the pulmonary branches of the vagus, consequent on the pressure exerted on them by enlarged bronchial glands. Tumors, also, of various kinds are capable of exciting cough in a similar way, and the development of tubercles in the lungs may produce the same effect. Aneurisms not unfrequently give rise to a cough, which may baffle us in our endeavors to account for its production; and, indeed, cough is often a very important symptom in the diagnosis of aneurism, and one from which we frequently derive assistance in localizing the disease. An aneurismal tumor may press upon the branches of the vagus distributed to the trachea and bronchi, and thereby excite the most severe paroxysmal cough. Of this there is an excellent example now in Fisk ward. The patient is a man who was admitted for cough of this character. We carefully examined his chest without being able to discover any indications of disease in the lungs; but at length we obtained evidence of the existence of an aneurismal tumor, which, most probably by pressing upon some

branches of the vagus, excited the violent cough, that constituted so prominent a feature in the case.

So, again, inflammatory ulceration of the trachea, whether primary or secondary, resulting from the pressure of an aneurismal tumor, especially about its bifurcation, where there are many branches of the pulmonary nerves, may cause a very distressing cough.

Thus, then, in reviewing the various circumstances under which cough may occur, you may enumerate the following kinds of this affection: 1st, The throat cough, the exciting cause of which may be either in the fauces or in the larynx. 2dly, The tracheal or bronchial cough, when the trachea or primary bronchi are the irritated parts. 3dly, The pulmonary cough, when the smaller ramifications of the bronchial tubes or the lungs are the seat of irritation. 4thly, A cough dependent on gastric irritation; and, lastly, in persons of highly nervous temperament, there is the nervous cough, which, in most instances, is no more than a convulsive affection of the throat muscles.

Of these forms of cough, those which most frequently come under our observation are the throat cough and the pulmonary or lung cough. The former is the common cough of ordinary colds, and may be readily distinguished by the absence of all abnormal phenomena, connected with the breathing sounds, and by the swollen and red condition of the mucous membrane of the fauces, and more or less of hoarseness. In more chronic cases, this membrane is less or not at all swollen, and assumes a dusky red hue and a lax condition. Coughs of this kind are repeatedly mistaken and treated for pulmonary coughs, and the patients condemned to take large quantities of nauseous drugs; whereas many of them are easily curable by local treatment. This kind of cough is often exceedingly violent and distressing, and is not generally accompanied by any other sputa than throat mucus and saliva.

The more common form of lung-cough is that which attends bronchitis. This occurs generally in paroxysms; it is accompanied with expectoration, which is the more abundant in proportion to the extent and severity of the bronchial affection. We find it likewise in connection with tubercular or other disorganization of the lung, and the more severe in proportion to the extent of pulmonary destruction and consequent bronchial irritation. Under these circumstances, an expectoration, generally copious and purulent, follows the cough; and, indeed, the presence of this matter in the bronchial tubes very frequently aggravates the cough. Another form of lung-cough is short and dry, or accompanied by little or no expectoration, and apparently kept up by some permanent irritant in the lung's substance, as crude tubercles scattered among the bronchial ramifications. Such a cough is a common precursor of confirmed phthisis, or, more correctly, an attendant on its early stages.

Such are the ordinary causes and forms of cough. *Part xxix., p. 79.*

Linctus for Chronic Cough.—The following is the formula for the linctus in common use in St. Bartholomew's Hospital:

R Conf. rose caninæ ʒij.; tragacanth. pulv. ʒj.; sirupi papaveris 5vj.; aceti scillæ ʒvi.; acidi aceticæ mxx.; aquæ ferventis ʒvj. Misc. Dosis ʒj. ad ʒiij.

A less expensive preparation is used for the same purpose in very large quantities at the London Hospital, under the name of Lohoch:

R Sacchari facis lbxxviij.; ol. olive ʒviij.; farinæ tritici ʒiv.; tinct. opii, aceti scillæ, aa. ʒviij. Misce. Dosis ʒj. ad ʒiij.

There are many forms of chronic cough, both in children and in adults, which are treated much more successfully, and far more agreeably to the patient, by the use of preparations of this kind than by the commonly-prescribed "cough-mixtures."

Part xxxiii., p. 102.

CRAMP.

Cramp and Spasm.—Cramp is a sudden, involuntary, complete, and painful contraction of a muscle. All the voluntary, and some of the involuntary muscles, are liable to these contractions. Spasm is the term usually employed when this painful affection seizes on an involuntary muscle; of the latter class, the most common sufferers are the heart and uterus; the uterus can suffer spasm when enlarged only. It is questionable whether muscles of canals, or even those of the bladder, can suffer to such extent from spasmodic action as demands medical treatment.

The involuntary contraction of muscles may vary in degree, from the painless form of subsultus tendinum or chorea, to the excruciating tortures of tetanus or epidemic cholera. The remote causes are various and dissimilar—irritation of the spinal cord; of the medulla oblongata; of the peripheral extremity of a nerve, mechanical or pathological; disease within the cranium, or a poison, as ergot of rye, circulating through the vessels. Involuntary contractions, attended with insensibility, are termed convulsions. The observations here refer solely to what may be called local cramp or spasm, originating in, and restricted to, one muscle, as observed in the gastrocnemius; in the uterus, as after-pains; and to that alarming spasm of the heart, angina pectoris.

Cause.—The immediate cause of local cramp would appear to be a *languid circulation in the veins which traverse the substance of a muscle*. This theory will explain why cramps attack most frequently the voluntary muscles furthest from the organ of circulation—the feet and legs; why they are more common in cold weather; why the principal sufferers are females, especially those with weak pulse, pale countenance, and chilly surface; and therefore why they are so seldom absent in chlorosis. It will also explain why the seizure is most usual in the horizontal position, when muscular action, so favorable to the circulation, has ceased. Nearly one half of the young, growing females, with a tendency to chlorosis, suffer from this annoying complaint; and it is remarkable, that although we have many cases where the cramps are limited to the muscles below the knee, we meet with none where the remark will apply to those above the knee. No inquiry being made about this symptom, it is seldom mentioned to the physician, and yet it is almost pathognomonic of an enfeebled action of the heart, from which the anemic headache springs. When this affection is complained of, whether in the aged or the young, no matter of what sex, the necessity for chalybeates is indicated. Dr. Brady makes one proper exception—in cases of pregnant females; but the cause of their languid circulation is mechanical, and therefore not remediable by medicine. It may very naturally be asked, if a feeble and delicate constitution

predisposes to cramp, why is it not an attendant on the last stages of diabetes, phthisis, and other exhausting diseases? Because those diseases produce hectic fever, and hectic is accompanied with a pulse so rapid as to be incompatible with a slow venous circulation. Nor does it supervene in debility after profuse hemorrhage; the rapid pulse of reaction and the half empty vessels affording a satisfactory explanation of its absence. The severest cramps we witness from arrest of circulation in the veins of muscles, are those which add so much to the horrors of epidemic cholera, for these cramps, although general, in an exact sense must be considered local, no muscle contracting until the blood in its own veins is arrested. It is an error to attribute the cramps of epidemic cholera to a poisonous quality of the disease; and the recollection that our own autumnal cholera is accompanied with similar cramps, should disabuse us of this mistake.

In neither form of cholera do cramps supervene, until the venous circulation through the muscles is almost impeded from the density of the blood, a natural consequence of the exudation of its serous portion. No person can doubt that in epidemic cholera the circulation is from this cause almost arrested; for on puncturing a vein, the blood trickles down slowly, thick and dark as tar. Fatal cases of Asiatic cholera, it is true, are recorded, where few or no evacuations took place, yet cramps, although not violent, were noticed. Such cases might favor the opinion that the cramps depended on the inhalation of a specific poison, did not the post-mortem examinations discover the exuded serum still in the intestinal tube, consequently the cramps were present, but less severe than where the exuded serum was too abundant to be retained in the intestines.

That there are poisons capable of coagulating the blood in its vessels, and that coagulation is attended with muscular contractions, cannot be denied. Dr. Pereira, in his last edition of "*Elements of Materia Medica*," quotes the "*Journal de Chimie Médicale*," to show the physiological effects of bromide of potassium. Thirteen grains, dissolved in water, and injected into the jugular vein of a dog, coagulated the blood, and caused convulsions and death in a few minutes. But the same medicine taken into the stomach in larger doses produced vomiting only. As a clinical fact in English cholera, it is interesting to observe how much sooner the cramps cease when the stomach does not reject fluids; for the veins are soon refilled, and thus the proportion between the crassamentum and serum is quickly restored. The so-called secondary fever of Asiatic cholera arises solely from congestion of the venous system generally, and this congestion is peculiar, the fault existing in the blood itself being too thick, from having parted with its serum, to be influenced by the action of the heart. Rigors, or rapid involuntary contractions of muscles, are seen after exposure to cold, at the commencement of most fevers, and in the first stage of ague; for the first stage of these diseases is characterized by the desertion of blood from the superficial to the deep-seated veins, and these rigors or contractions are salutary; for by compressing the deep veins, the blood is restored to the superficial vessels, causing the phenomena of reaction. In fevers there can be nothing more alarming than the absence or prolonged delay of rigors. When scarlatina threatens to be unfavorable within twenty-four or thirty-six hours, from its invasion, there are no rigors, for the muscles seem to have lost this salutary contractile

power. A cramp may therefore be regarded as a painful but not action of a muscle to assist in the circulation of venous blood.

Part xxviii, p. 33

Cramp—In the Legs and Feet.—It is often connected with a weakness of the digestive organs: let diet therefore be carefully attended to, and let the sufferer sleep on an inclined plane, the bed being twelve inches higher at the head than at the feet.

Part iii, p. 1

CREASOTE.

Therapeutic Properties of Creasote.—[Since the attention of the profession was drawn to the value of creasote in cholera by Mr. Spinks, of Warrington, Dr. Richardson has given the remedy a fair trial in the treatment of ordinary diarrhœa, and as far as his own observation goes, there is an astringent remedy half so useful in certain cases of profuse purging. Dr. R. says:]

The cases in which I have found creasote most valuable are of three kinds:

1st. Cases where purging appears, and cannot be traced to the presence of foreign matter in the intestines, as so often happens during ordinary epidemics.

2ndly. Cases where a diarrhœa follows the administration of purgative medicines given for the purpose of removing foreign matters from the intestines.

3rdly. Cases where, after an acute diarrhœa, a state of passive purging continues—the patient being constantly troubled with sudden small liquid evacuations, not attended with great pain, or any considerable constitutional disturbance.

With children the remedy is also useful; but, to secure success with them, the dose must be very small—the one-fourth, one-sixth, or one-eighth of a drop to children under two years, is sufficient. With adults from one to two drops is the dose I usually prescribe, and this may be repeated every two or three hours for several times if required.

Its power to arrest vomiting depends upon the dose: given in a full dose, two drops, I have seen it even bring on vomiting; in which case a few minims of dilute hydrocyanic acid are usefully combined with it. At the same time, I may observe that I have seen diaphoresis follow its administration, and that it possesses very excellent antispasmodic properties. I have also found it very useful in arresting hiccough in cases of exhaustion. To disguise the nauseous qualities of creasote, no vehicle seems to me to answer so well as the sirup of tolu, to which compound tincture of cardamoms may be added. It is also very advantageously combined with opium, or with the preparations of ether, in cases where these remedies are indicated.

Part xxv, p. 314

CROUP.

Croup and its Cure.—Dr. Grahl calls attention to the employment of arm-baths in croup. They are indicated in the commencement of the stage of exudation, the existence of which is rendered evident by the difficult respiration. He regards the employment of leeches in this stage as of no avail, and the administration of sulphate of copper and emetics as likely to increase the exudation. His recommendation is, that the arms of the patient be placed in a vessel sufficiently deep to admit them to a hand's breadth above the elbow-joint and filled with water as hot as it can be borne. A cloth should now be thrown over the head of the patient, which falling down around the edges of the bath retains the vapor, and this the patient should be allowed to respire for a quarter of an hour together, repeating it at short intervals. The first application usually induces some degree of moisture in the Schneiderian membrane, and diminishes the dyspnoea. As it is repeated the cough usually loses its hoarse tone, and the patient expectorates the exuded lymph. In cases where the symptoms are extremely urgent, calomel in large doses should be given and a blister applied to the throat, but in the great majority of cases the employment of the arm-bath is all that is necessary.

Part iv., p. 56.

Rapid Vesication and Counter-Irritation.—In a case of croup, the vesication was produced by hot water. A piece of flannel was rolled to the thickness of the finger, dipped into boiling water, and immediately applied round the throat. The symptoms were subdued in a few minutes.

Part v., p. 81.

Extract of Indian Hemp.—Case of *crowing inspiration* reported cured by one-sixth of a grain of extract of Indian hemp, three times daily. The bowels were regulated. Patient's age, nine months.

Part vi., p. 29.

Treatment of Croup following Ulcerated Sore Throat.—It seldom if ever happens that an attack of croup following cynanche maligna is cured. The following case illustrates the use of a *saturated* solution of nitrate of silver in such a disease. The child, four years old, had an attack of ulcerated throat which seemed to have passed away before the attack of croup came on. Croup followed, and on examining the throat there was seen an ulcer half an inch in diameter over the left tonsil, and the fauces greatly inflamed. The usual treatment was adopted, but the symptoms gradually increased in severity; "the stridulous breathing became constant and very shrill, the restlessness increased, and high fever set in with great thirst." Twice was a vein opened in the arm until the pulse yielded.

Two grains of calomel, four grains of antimonial powder, and half a grain of ipecacuan, were now given every hour for six hours, after which the ipecac was increased to one grain, and continued every second hour until thirty grains of calomel had been given, without apparent relief. Suffocation impending, an emetic of sulph. copper afforded relief by producing vomiting—shreds of membranous matter being thrown off. The mitigation by vomiting being but temporary, a *saturated solution of nitrate of silver* was freely applied with a small sponge to the ulcer and fauces, thrusting it far back into the pharynx. Every application was followed by relief, and it was repeated every two hours where the albuminous accumulation

was found present. Constant redness of the cutaneous surface was kept up by turpentine on the sides and back of the neck.

In a day or two the ulcer had contracted, the plastic exudation ceased, and the patient soon recovered. *Part vi, p. 10.*

Crowing Respiration.—In the *crowing respiration* of infants, sometimes called "*thymic asthma*," or "*laryngismus stridulus*," Dr. Marshall Hall recommends the *daily* lancing of the gums, whether inflamed or not. Dr. Henderson recommends an opium liniment with croton oil to be rubbed on the spine. In many of these attacks, as well as in many other convulsive diseases of children, the Indian hemp is recommended. *Part vi, p. 10.*

Laryngotomy.—This is an operation which is certainly neglected in many cases where life might be saved by its means. Every surgeon ought to carry in his pocket-case some sort of an instrument by which he might be ready on any emergency to perform this simple operation. Even in the few cases of laryngitis or croup in which it is performed, it is too frequently delayed till too late; for when asphyxia approaches it will have little chance of success. In all cases, therefore, in which blood-letting, antimony, mercury, etc., have failed to relieve the disease, and where the strength is evidently giving way rapidly, the difficulty of breathing increasing, and lividity showing the approach of asphyxia, bronchotomy ought to be performed without delay. We quite agree with Louis, that "as long as bronchotomy is considered an extreme measure, it will be always performed too late;" and Dr. C. J. B. Williams judiciously remarks, that if in laryngitis "free bleeding produce no relief, or be not borne, and serious difficulty of breathing have become established, we would not wait for the appearance of pallor or lividity, as recommended by Dr. Cheyne, but we would urge the performance of bronchotomy without delay. To defer the operation on account of the difficulty or danger attending it, is most unreasonable; for experience has proved that these are increased rather than diminished from delay; and the danger from the operation is at no point to be compared with the danger from the obstruction to the breathing that it is calculated to remove. Laryngitis destroys life—not by the extent of the vitality of the organ which it occupies, but by closing, as it were, the door of the breathing apparatus; by opening another door, we render the disease comparatively trivial; and it may then be deliberately attacked by mercurial and other remedies, or, if slighter, even be allowed to run its course, which commonly ends in mucö-purulent secretion."

The same remarks will apply equally well to all cases in which respiration is impeded.

Mr. Hilton's instrument is here recommended. It consists of "a curved trochar and canula; the canula being oval from side to side; and the trochar lancet-shaped, much flattened above and below, and cutting sharp point and edges. This instrument may be passed through the crico-thyroid membrane into the larynx, or through the trachea, with the greatest facility." It is better to divide the skin first with a lancet, and "the form of the cutting instrument and canula are so adapted that the canula presses upon the whole of the cut surface, and thus prevents any internal bleeding." *Part vi, p. 11.*

Treatment of Croup with Sulphate of Copper.—Dr. Schwabe generally begins the treatment by applying from four to twelve leeches to the larynx

and then orders 1½, 2, 3, and occasionally even four grains of sulphate of copper, mixed with a few grains of sugar, to be taken every half hour or every hour, according to the urgency of the symptoms. Each dose is followed by vomiting, which, scanty after the first dose, is always copious after the second, and is continued so long as thick mucus or membranous concretions are apparent in the matters ejected. The patient then takes half a grain of the sulphate every hour, until several dark green motions have been discharged, to effect which from eight to twelve doses suffice.

Part viii., p. 72.

Tracheotomy in the Last Stage of Croup.—At the sitting of the Academy of Sciences, M. Scoutetten, professor at the military hospital of instruction at Strasbourg, read a case of tracheotomy performed with success in the last stage of croup. He performed the operation on his own daughter, an infant six weeks old, to save her from imminent death. The operation was successful. According to M. Scoutetten, it is the only instance of tracheotomy performed on account of croup on an infant of this age; and the only one in which such alarming symptoms lasted so long. He is of opinion that this case ought to encourage the timid, and show the surprising resources of nature at this tender age.

Part ix., p. 181.

Turpeth Mineral in Croup.—In croup, scarlatina maligna, etc., where great prostration exists, the stomach seems insensible to ordinary emetics, which only purge, and increase the prostration. In such cases, try the turpeth mineral (sub-sulphate of mercury). To a child, twelve years old, give five grains every fifteen minutes, accompanied with mustard whey, till vomiting is produced. The second dose will generally be sufficient. It vomits for an hour or two without causing purging, or subsequent prostration. It may be repeated twice or thrice in twenty-four hours.

Part xiv., p. 134.

Case of Tracheitis.—A child under three years of age was seized with hoarseness, dry cough, and great dyspnoea. Dr. Durrant says:

The most prompt and energetic measures had been adopted; the trachea had been freely leeches, followed by a blister; calomel and antimony in full doses at frequently repeated intervals had been persevered in; and that most admirable plan of keeping up a constant supply of warm moist air throughout the apartment was in full operation. It was ascertained from the mother that she had lost two children from croup, but this child had been in apparently good health up to the period of seizure. The countenance was now anxious; the skin not very hot; voice extremely feeble; cough stridulous; respirations panting and accelerated; pulse 120, small and jerking; tongue moderately clean; bowels confined; evacuations healthy; urine very high-colored, without deposit; had been very sick from the medicine.

[The energetic treatment at first adopted, was now considered to have been carried far enough; and the calomel and antimony were therefore laid aside. Dr. Durrant continues:]

The diffusion of warm moist air to be unremittingly continued day and night; a roll of flannel dipped in boiling water to be applied as a vesicant to the throat; a saline mixture, containing the bicarbonate and nitrate of potash, with compound tincture of camphor, was prescribed every four hours, and an improved diet of arrow-root and mutton-broth. This treatment, with the addition of port wine to the arrow-root was persevered in, and

on the fourth day the patient expectorated about a tablespoonful of pus. From this date the patient rapidly recovered. The diffusion of the warm moist air being unremittingly continued until convalescence was complete.

Part xv., p. 12.

Croup—Membranous.—Apply solution of nitrate of silver, seven or eight grains to the ounce, by saturating a ball of lint in the solution, conveying it to the opening of the larynx by a long curved pair of forceps, and then squeezing out the solution by compressing the ball between the blades. Repeat this application every eight hours if required.

Part xvi., p. 17.

Pseudo-membranous Laryngitis, or True Croup.—Bleed to four or six ounces, and give a teaspoonful of finely powdered alum, mixed with its own, or twice its own bulk of honey, sirup, or treacle, and repeat it once, fifteen, or twenty minutes, if the first dose fail to produce free respiration. Use the warm bath; give calomel in three or four grain doses every six hours; if necessary, repeat the emetic, and the depletion by the lancet, or leeches; and apply a ten grain solution of nitrate of silver to the fauces twice or thrice a day.

Part xvi., p. 17.

Laryngismus Stridulus.—Give purgatives to remove accumulations of morbid secretions from the bowels. Lance the gums freely when they are swollen and inflamed, but not otherwise. Let the child be fed slowly, at short intervals, and with food of good quality. Dash a pitcher of cold water suddenly upon the back and shoulders, night and morning. And let the child be lightly, though sufficiently clad, and taken into country air, if possible. During the paroxysm, or when it is impending, dash cold water rapidly and liberally into the face.

Part xix., p. 20.

Diphtherite.—In diphtherite, or laryngeal croup, tracheotomy is applicable, as the false membrane does not extend below the larynx. The operation should be performed early, before the patient becomes exhausted.

Part xix., p. 21.

Croup—Membranous.—Besides giving calomel, apply solution of nitrate of silver, forty or sixty grains to the ounce, to the interior of the larynx, by means of a piece of sponge cut into a conical form, and fixed fastened to a curved piece of whalebone.

Part xix., p. 21.

Croup.—Give calomel and alum. To a child seven years old, two grains of calomel and three grains of alum may be given alternately every hour.

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When the disease commences as diphtherite in the pharynx, mercury alone is useless, and may indeed be dispensed with, as the local treatment is the most important. The best way is to begin with an emetic of sulphate of copper; then to cauterize the back of the throat well with fuming hydrochloric acid, daily; and to give alum mixed up with honey every quarter or half an hour.

Part xxi., p. 13.

Treatment of Croup by Warm Vapor and Emetics.—Place the child in a bed closed with a double curtain. Introduce into the bed a large earthenware pan nearly filled with all but boiling water. Into this occasionally submerge a heated brick, for the purpose of disengaging steam. By this means the atmosphere around the little patient will be kept at

temperature of from 75° to 80° Fahr., and surcharged with vapor. In addition to this part of the treatment, give an occasional emetic whenever the breathing seems impeded, not to produce the constitutional effect of the drug employed, but to facilitate mechanically the expulsion of the products of the inflammation.

Part xxvi., p. 71.

Chlorate of Potass in Croup.—In a case occurring in a child three years old, after leeches, calomel, salines, and ipecacuanha had been employed, chlorate of potass was administered, apparently with the most marked benefit.

Part xxvi., p. 76.

Use of Sulphate of Copper.—Sulphate of copper does not produce the depressing effects of other emetics, is equally safe, and much more sure in its action. Make a solution of eight grains in one ounce of distilled water, and give a teaspoonful to a tablespoonful every ten or fifteen minutes, according to the ease or difficulty with which vomiting is produced, and until the more violent symptoms are abated. When improvement in the symptoms takes place it must be continued in smaller doses and at longer intervals.

Part xxxii., p. 83.

Diagnosis of Fibrinous Concretions in the Heart in Cases of Inflammatory Croup.—The symptoms which mark the cases of croup about to terminate in syncope, the result of cardiac obstruction, are distinct from those arising from obstruction in the air-passages.

The differences are these: In the cases of syncope from arrested circulation, the dyspnea is not caused by obstruction in the larynx, but by the peculiar anxiety and gasping desire to breathe incident to the want of blood in the pulmonic circuit. In this case, therefore, if the stethoscope be carried from the upper part of the windpipe downward, and over the whole chest, the respiratory murmur is audible, and it may be clear throughout, so that the observer is prepared to say, there is here no such deficiency of respiration as will account for the severity of the symptoms. Again, the most common physical pulmonic sign in these cases is that of emphysema, which is often accompanied, in very young children, by a peculiar prominence in the anterior part of the chest. This emphysema, when present, is strictly diagnostic of fibrinous obstruction, and is altogether subversive of the idea that the cause of the symptoms is an obstruction in the windpipe.

In addition, there are in these cases the definite signs which mark the cardiac obstruction. The body is cold and generally pale, almost marbly, but mostly so at the extreme parts. The lips are slightly blue; the cheeks are occasionally the same. The jugular veins are distended. The pulse is irregular. The body is painfully restless. The heart-beats are feeble, quick, and irregular; the sounds muffled with a bruit in some cases. No real convulsions of the limbs occur, but intense anxiety and constant movement.

In those cases, on the other hand, where the death is really due to apnea—the effect of obstruction in the air-passages—the symptoms are widely different. In these cases there is some point in the respiratory canal where an obstruction can be detected. The lungs show signs of congestion, but never of emphysema. The difficulty of respiration arises from an absolute inability to fill the chest. From the fact of the obstruction being in the respiratory circuit, such blood as passes through it is not

arterialized, and the surface of the body, instead of being pale, as in case of cardiac obstruction, is generally of a dark hue, with the veins also decidedly turgid. The muscles are not simply restless, but actually convulsed violently, the patient being unconscious of the fact; the heart sounds are clear, and its motions, though feeble, are rarely tumultuous.

Lastly, the breathing is the first to stop at death, while, in the former case, the heart takes the precedence in this respect.

These broad and definite diagnostic signs can never be mistaken, except in instances where there is a clot in the heart coincidently with obstruction in the windpipe. Here some difficulty may arise, but a careful inquiry into all the facts will indicate the existence of the complication.

The points of practice which are to be gathered from a clear diagnosis in cases of this character are numerous, but in none so important as settling the question whether tracheotomy should or should not be performed.

If in any given case the practitioner shall find the symptoms referable purely to obstruction in the trachea or larynx, and the circulation not embarrassed, he will operate with good chance of success, granting that the point of obstruction is not too low, and that no further inflammation succeeds. If, on the contrary, he should diagnose the symptoms of cardiac obstruction, whether or not complicated with constriction in the windpipe, the operation is worse than useless; it will, of necessity, fail, because there are other fatal influences at work which the knife cannot affect.

Part xxxiii., p. 88.

Dropping a solution of Chlorate of Soda into the Trachea, to aid in the Treatment of Croup after Tracheotomy has been performed.—In dropping a solution of chlorate of soda into the trachea, M. Barthez states—"My only object is, to obtain a solution of the false membrane. I expect only to soften the adherent surface sufficiently to allow of the membrane becoming more easily detached by the fits of coughing, and so being expelled.

In one patient, a portion of false membrane, which was adherent, and causing suffocation, became detached, and was thrown up in two hours after the drops had been commenced, they being used every quarter of an hour. This false membrane lined the trachea, and went down as far as the bifurcation of the bronchi.

In another child, drops of cold water, used in the same manner for six hours, produced no result; while, after a warm solution of chlorate of soda had been used for one hour, fragments of false membrane became detached, and were thrown up, and continued to be expectorated abundantly for several hours.

Part xxxviii., p. 62.

Croup.—M. Jodin, in a recent communication to the Academy of Sciences, states his belief that croup and pseudo-membranous angina are merely parasitical diseases, due to the formation of fungi. The treatment which he recommends is the application of the sesquichloride of iron, which completely impregnates the fungus, and may be absorbed without danger.

Part xxxix., p. 99.

Croup.—The advantage of repeated vomiting to aid in the detachment of the false membrane of croup is admitted by most physicians. Some use antimony, others prefer ipecacuanha, the action of which is less

depressing. The sulphate of copper, in addition to its emetic action, possesses a very remarkable property of acting locally, and this peculiarity makes it superior to both tartar emetic and ipecacuanha. When a solution of this salt is employed, the secreting surfaces are so modified, that no more false membranes are formed, or if they are formed, they no longer present the plasticity which renders them so adherent to adjoining parts. The dose should be repeated frequently till vomiting is induced, and the solution tolerably concentrated. *Part xl., p. 55.*



CUPPING.

Cupping with the Aid of Hot Water.—Dr. James Orr has suggested an improvement in the common operation of cupping. Instead of using the ordinary apparatus with spirits of wine, he produces a vacuum by means of suction with the mouth. The cupping-glass is like the one in common use, with this exception, that at its top there is a small tube, terminated by a valve made by tying a bit of bladder over it, and well secured with a thread round the neck of the tube. By applying the mouth to this tube, and sucking in the way that is done when a woman's breast is being drawn by the common sucking bottle, almost any required vacuum may be produced, the little bit of skin being elevated to an extent that is sufficient to allow the air within the cup to escape; and when the mouth is removed from the tube the pressure of the atmosphere forces the skin so close to the tube as to prevent the ingress of the air. Dr. Orr makes another suggestion which may prove an advantage. After the part has been scarified, he puts about an ounce of hot water into the cupping-glass before he causes the vacuum. The water may be made much hotter than could be borne in ordinary fomentation, owing to the insensibility of the skin produced by the tightening of the cupping-glass. This form of cupping-glass with the addition of hot water may occasionally be very useful after the application of leeches. *Part viii., p. 153.*

Simple Cupping Instrument.—At a meeting of the Suffolk District Medical Society, Dr. Gould exhibited a new instrument for cupping, formed of a thick, firm, hollow India-rubber ball cut in half. In applying it, all that is necessary is to place the concave surface on the part that is to be cupped, and press down the centre to exhaust the air, after which the fingers may be taken off, and the ball will be found to adhere—and quite firmly, too—by means of the vacuum created. For all the ordinary purposes of cupping, this simple contrivance will be found most effectual, and particularly in dry cupping.

To the country practitioner, who cannot always have leeches at his command, this simple and cheap substitute will be most acceptable.

Part xxv., p. 196.

Capron's Ventouze, for Cupping and Dry Cupping.—This very useful and ingenious instrument is the invention of M. Capron, of Paris, and is another instance of the valuable adaptation of india-rubber to our surgical appliances. The india-rubber ball is an exhausting medium, which may be

regulated to any required power by the hand of the operator. By turning the screw, the ball can be taken away, leaving the glass in active operation upon the part. The Ventouze is constructed for cupping, leeching, and as a breast-reliever; different glasses being added to fulfill these various purposes, which are accomplished most perfectly. *Part xxviii., p. 127.*

CYNANCHE.

Treatment of Cynanche by Guaiacum.—Several very successful cases of this troublesome and painful disorder are related by Mr. Bell, in who half drachm doses of the powdered guaiacum every four or six hours either alone or mixed up in a suitable form, were attended with very remarkable success.

Mr. Bell's formula is as follows:

R Pulv. Guaiac. ʒij.; mucil. g. arab.; syrup. simpl. aa. ʒij.; aq. camom., aq. pure, aa. ʒiv. M. et solve, capt. ʒij. 4ta. q. q. h.

One or two days are only required for the cure. In other cases the powdered drug was given in some simpler vehicle. It will be found chiefly successful, if given before suppuration has taken place.

Part iii., p. 8.

Cynanche Tonsillaris—Case.—A lady, rather subject to febrile cynanche tonsillaris, was attacked with rigors in the evening and sore throat during the night. Next day the right tonsil was much enlarged and red, and the posterior palate and velum red and thickened—the pulse at the same time being one hundred and twenty, and sharp, and the febrile expression considerable. In the evening, and therefore within the first twenty-four hours, ten grains of Dover's powder were given at intervals of half an hour, till half a drachm was taken. Perspiration, which soon broke out gently, was kept up for fifteen hours by warm drink. In twenty hours after the powders were taken, the pulse was seventy, the pain in swallowing gone, and the swelling and redness insignificant; and on the subsequent morning she was able to leave her bed. This attack happened eight years ago at least, and the disease has not returned since.

Part iii., p. 6.

Cynanche Maligna.—Give powdered guaiacum in combination with chlorate of potash. Support the strength with beef-tea, mutton-broth, &c. Cause the patient to frequently gargle the throat with a solution of chlorinated soda; or, if he be too young or unable to use the gargle well, cause his throat to be mopped or sponged with it. The secretions of course must be attended to, and in the later stages of the disease, tonics such as quina, or bark, and nitric acid will be beneficial.

Part xxxvii., p. 56.

CYSTS.

Iodine injections in the Treatment of Serous Cysts.—M. Velpeau, from the success which attended the use of iodine injections in hydrocele, has extended the treatment to various kinds of serous cysts, enlarged bursæ, etc., about the knee, in the axilla, breast, neck, and other parts. The cyst is punctured with a trocar proportioned to its size, thus emptying it; there is then injected through the canula, a mixture of one part of tincture of iodine, with two parts of water. It should be nearly all drawn off in a few seconds. In a day or two the cyst inflames, though never severely, and ultimately shrivels and disappears. *Part v., p. 153.*

Cysts of the Eyelids.—In reference to their treatment, M. Velpeau observes,

Of the two proceedings, extirpation and incision, the former, employed by most surgeons, appears to me a tedious operation. It is necessary to dissect with caution, and if it be a cyst, whatever care is taken it will be difficult to avoid opening it; it then is necessary to excise it entirely, and to apply cauterization, or there will be a considerable chance of return. If the contents of the tumor be concrete, the operation will be comparatively easy; but otherwise, I think the incision is preferable: it is less painful and quite as successful. Some persons in practising this operation hold the tumor with the fingers, others place an elevator beneath the eyelid. I employ simply two pair of forceps, of which one is held by an assistant; I myself, holding the other in such a manner that the eyelid is rendered tense between them, and raised from the globe of the eye. I make the incision, expel the contents, and apply nitrate of silver to the interior of the cavity. There is sometimes slight consecutive inflammation, and the eyelid swells a little, and soon an eschar is detached, and the cure accomplished in eight days. A piece of lint dipped in saturnine lotion or cold water is the only dressing employed. I should, however, observe, that by extirpation the cure is more prompt; a piece of dressing is placed on the wound, and the whole is terminated. *Part vi., p. 146.*

Decoction of Oak Bark.—This preparation has of late been strongly recommended by a French practitioner as an injection into dropsical cysts, as hydrocele, etc., after their previous contents have been drawn off. It is said to exert a marked tendency in preventing a subsequent accumulation of fluid. Its active astringent quality suggested to the above practitioner that it might be serviceable in promoting the contraction of the ring after the reduction of recent inguinal hernia; and the application for some time of compresses impregnated with a strong decoction of oak bark, kept *in situ* by a truss or bandage, has been in his practice attended with this result to the most satisfactory extent. *Part viii., p. 76.*

Encysted Growths.—[Encysted growths arise from obstructions of the crypts and follicles of the skin and mucous membrane, and of the excretory ducts of various organs. Dr. Bennett says of them:]

Encysted growths are composed of a cyst or membranous envelope, inclosing various kinds of contents.

By some they have been divided into *simple* and *compound*, according as the tumor is formed of one cyst, or is composed of several. By others they have been arranged according to the nature of their contents into

hygromatous, or aqueous; *atheromatous*, resembling gruel; *melicerous*, honey-like, and *steatomatous*, or fatty encysted growths. The latter mode of division is very faulty, the atheromatous, melicerous and steatomatous varieties being all more or less fatty, whilst some kind of compound encysted tumors contain different contents in different cysts.

An acquaintance with the structure and mode of development of these growths must convince us that there are only two modes of treatment applicable—namely, 1st, entire extirpation, and 2d, destruction of the secreting surface in their interior. The idea that a dense fibrous envelope, often containing numerous secondary cysts, all richly furnished with blood-vessels, can be absorbed through the agency of mercury, iodine or any other drug, must be purely imaginary. Neither can it be supposed, that as long as any of the cysts remain intact a cure can be hoped for. But we have seen that the natural course of these secondary cysts is to open into each other, until at length only one large cyst remains. Under such circumstances a rupture, by exciting adhesive exudation, and thus destroying the secreting surfaces, or inducing adhesions between them, may effect a radical cure. It is in this manner that the occasional spontaneous removal of certain ovarian cysts are to be explained.

Part XVI., p. 320.

DEAFNESS.

Treatment of Deafness.—After alluding to M. Petrequin's opinion, that the use of the Eustachian tube is similar to that of the holes made in a drum, viz., to renew the air within the cavity of the tympanum, the following important conclusions, drawn by M. P. from his experience, are given:

1. That deafness is of very frequent occurrence in old people, in whom the mucous membranes do not perform their functions healthily, and who are subject to catarrhal congestions; also in those persons who have been subject to any of the numerous forms of inflammation of the pharynx.
2. That the inspection of the throat furnishes a means of exploration which greatly facilitates the diagnosis, by often revealing a chronic and indolent inflammatory state of its mucous membrane.
3. That Sir A. Cooper was mistaken in considering the existence of a humming noise in the ear as a symptom exclusively of nervous deafness; a form of the infirmity which is also of much less frequent occurrence than he supposed.
4. That it is a serious error to consider as incurable all cases of deafness, in which the patient cannot hear the ticking of a watch placed between his teeth.
5. That the diagnosis of obstruction of the Eustachian tube, easily established when redness of the pharynx exists, is much less so when this has disappeared, and when the lesion of the tube alone remains.

M. Petrequin, however, is of opinion that we may suspect the existence of this lesion by the varying condition of the sense of hearing in different states of the weather, and when it is somewhat better, for a longer or shorter period of time, after a fit of coughing or sneezing.

6. That the prognosis or chance of cure in this form of deafness is by no means so unfavorable as B. Bell and Sir A. Cooper have alleged; that often it may be cured by fluid or gaseous injections, or by cauterization of the opening of the Eustachian tube in the throat, or by the use of alum applied either in the dry or liquid form to the back of the fauces—as a gargle, or as a powder mixed with sugar and insufflated upon the fauces, or lastly, the direct application of a stick of alum—recommended so strongly and used so successfully by M. Petrequin. He believes that this salt has a special effect on the pharyngeal membrane, independently of its merely astringent operation. However this may be, it would seem that it has a most beneficial influence on many maladies of the mouth and fauces. M.M. Bretonneau and Pommier have strongly recommended it in the treatment of diphtherite, Signor Bennati in various affections of the larynx, and M. Velpeau in diseases of the throat. Its administration is easy, and does not interfere with the employment at the same time of other remedies, as antiphlogistics, revulsives, purgatives, cauterizations, the catheterism of the Eustachian tube, and the baths of compressed air, which have been so successfully used by M. Pravaz.

Hitherto no trial has been made of injecting a weak solution of alum directly in the Eustachian tube; but it is more than probable that the practice will be found highly useful in many cases.

"We would suggest the addition of tincture of capsicum to the alum gargle, as rendering it probably still more efficient in dissipating the chronic inflammatory state of the fauces and pharynx, which, according to his observations, is so frequent an accompaniment of deafness."—*Rev.*

Part iii., p. 112.

Treatment of Deafness by Puncturing the Membrana Tympani.—Sir Astley Cooper showed that the cases likely to be relieved by this practice were those in which the Eustachian tube was permanently closed, or when blood had been extravasated behind the membrane. To those cases, other pathologists have added "a morbidly thickened and cartilaginous condition of the membrana tympani" itself. Dr. Mercier has performed the operation in fifteen cases. Of these, six were performed for chronic thickening of the membrane, and the remaining nine for obstruction of the Eustachian tube. One case alone, and that of the latter affection, succeeded in the restoration of hearing. The operator then agrees with Itard in saying that "nothing is more rare than the cure of deafness by perforation of the membrana tympani." He then details at length the history of an instance of idiopathic hemorrhage into the cavity of the tympanum. In this case, deafness, which was complete, was removed by the operation.

"The membrana tympani, instead of its normal, transparent, grey appearance, had a dull brown color, and was slightly congested at the margin; the vertical line, indicating the handle of the malleus, was lost in the surrounding color, and the membrane, instead of presenting its concave appearance, seemed pushed outward into the meatus. On touching it with a probe, it was almost insensible, and pressure against it produced an elastic pitting. The head was carefully supported, with the left ear turned up, and the auricle drawn toward the vortex. The speculum being introduced as far as the second curve of the meatus, and then expanded, with a clear and steady light, the anterior and inferior part of the membrane was perforated, and a small portion of it removed by an instrument, which

consists of a fine but strong steel needle, two inches and a half long, and the handle of an octagonal form, one and a half inches in length. The cutting or drill head is spear-shaped, one-sixth of an inch long, and one-eighth in breadth at the shoulders, where the edges are turned over. The point and edges are very sharp. Each of these edges is hook shaped, one turned forward and the other backward; and when thus viewed longitudinally at their broadest part, they resemble the italic letter *f*. On being brought in contact with the membrana tympani, the handle is made to rotate between the thumb and fore-finger, and this being communicated to the cutting point, it perforates the membrane similar to a drill, at the same time that the everted edges are causing a considerable loss in its substance." The subsequent treatment consisted chiefly of injections of warm water, and inflating the cavity with air, through the Eustachian tube. Dr. Mercier observed that the average time for reproduction of the membrane when allowed to take place, was about four days.

Part xi., p. 122.

Deafness, occurring in Scarlatina and Measles.—In the cure of deafness produced by the exanthemata, sirup of sarsaparilla, made after the old formula—to which may be advantageously added the root of *rume crispus*, and the tinctures of the bark of *prinos verticillatus* and *chymaphila umbellata*—is a remedy of the first importance; next, the muriate of lime, an old remedy now much neglected; and lastly, iodine and its preparations as internal remedies. Blisters kept perpetually discharging, placed behind the ears or on the arms alternately, form the remedies to be applied externally. The fauces must be well rubbed with a smooth piece of silver twice a week, to be occasionally alternated with a solution of nitrate of silver, or when the tonsils are prominent, with the solid caustic, not too heavily applied. Lastly, the external meatus must be cleansed once a day with warm brandy, or warm brandy and water, or a solution of iodine, or a decoction of the bark of *prinos verticillatus*. Perseverance in this course for months, sometimes for more than a year, finally ends with complete success, if the treatment have commenced before disorganization of the external or internal ear.

Part xvii., p. 201.

New Mode of treating Certain Cases of Deafness.—Mr. Yearsley observes that hitherto there has been no successful mode of treating the deafness arising from perforation of the membrana tympani. The process of syringing out pus or mucus from the tympanal cavity, by passing air through the perforation by way of the Eustachian tube, will often indeed produce a temporary improvement; but in many cases it is of little or no service.

Cases of deafness arising from perforation of the membrana tympani may be immediately relieved in a most astonishing manner by adjusting a pellet of moistened cotton wool so as to cover the perforation. It is to be applied in the following manner: use a pair of small forceps, weak in the spring and accurately made, and differing from common forceps in having the blades not rough at their extremity, but smooth and rounded off, so that *when in apposition they may act as a probe*. Having ascertained, by means of the speculum, the precise condition of the membrana tympani, take a small quantity of wool that has been moistened in some fluid without any compression, and pass it by means of the forceps, down to the bottom of the meatus; then disengage the forceps, close the blades, and use the points to adjust the wool at the spot where it produces the best

degree of hearing. The adjustment will require some management; but by repeated trials the patient will be able to do it himself, and should withdraw the dry wool and replace it with moist, night and morning, or morning only, as may be found necessary. Instead of using the forceps to adjust the wool, a small silver probe may be used; and at the other end of the probe there may be a small screw, by means of which the dry wool can be withdrawn. As we have now a means of relieving the deafness which attends an open tympanum, perforation of this membrane may be resorted to with a better prospect of advantage than heretofore. It may be employed when there is—1st, great thickening of the membrane; 2d, occlusion or obstruction of the Eustachian tube; 3d, extravasation of blood into the tympanum; it being provided in all these cases that there is no other way of relieving the disease, and that all the other parts of the ear are healthy.

Part xviii., p. 238.

Senile Deafness.—Mr. Toynbee observes:

It being now established by dissection that the most frequent pathological condition in the ears of elderly deaf persons consists of a thickened state of the mucous membrane, the presence of bands of adhesion, and a thickened condition of the membrana tympani—any one of which circumstances is sufficient to prevent the passage of sonorous undulations from the membrana tympani to the expansions of the auditory nerve—it is highly important to inquire whether any remedial measures can be suggested which will tend to diminish these diseased conditions, and consequently improve the power of hearing. Practical experience induces me to believe that not only may the thick membrana tympani be relieved, but the thickened mucous membrane may be so reduced, and in some cases the bands of adhesion so far relaxed, that their presence will offer scarcely any impediment to the function of hearing.

The local application most suitable for this purpose which I have tried, is that of a solution of argenti nitras, of a strength varying from half a drachm to two drachms of the salt to an ounce of distilled water. Proceeding from the exterior orifice of the meatus externus, the passage may be touched to an extent varying from one-half to two-thirds of its length every third or fourth day. In some cases the membrana tympani also may be washed with a solution of argenti nitras, of six grains to the ounce. Where the noises are loud, and the symptoms indicate much congestion in the ear, leeches should be applied immediately *below*, not *behind*, the ears; and, where there is irritation of the external tube, an ointment composed of half a drachm of pulvis cantharidis, added to an ounce of simple ointment, and applied behind and below the ear, either daily, or every other day, will be found beneficial.

The administration of alterative doses of pilula hydrargyri, hydrargyrum cum creta, or the hydrargyri bichloridum, is very useful; but it must be always recollected that the doses ought to be so proportioned, that neither debility nor any other unpleasant symptom shall be produced; in other words, so gentle should be the alterative, that no sensation should suggest to the patients that they are under a course of medicine.

In addition to the medicines recommended, patients should be cautioned to avoid warm close rooms, and sitting very near the fire; no wine should be taken unless diluted with water; daily exercise, and when possible on

foot, should be taken in the open air; together with a warm bath every week or ten days. This course of treatment has been productive of the greatest advantage in several cases of deafness of a most unpromising character.

Part xii., p. 211.

Use of Glycerine in Deafness.—In deafness caused by thickening of the membrana tympani, by deficiency of ceruminous secretion, or by a horny and dry condition of the auditory canal, and in many other cases, the application of glycerine will be beneficial. It is thus applied: wet the auditory passages carefully by means of cotton held between the blades of a pair of forceps adapted to the purpose, and dipped frequently in warm water, and dry them in the same manner; then apply the glycerine by the same means, passing the cotton, well soaked in it, repeatedly backward and forward in each meatus, and taking care to apply it to the tympanum. If a proper pair of forceps are not at hand, use a camel-hair brush.

Part xii., p. 182.

Guaco—Its Use in Deafness.—Dr. Pritchard, says, that the true guaco plant is named the "Mikania Guaco," classed by Dr. Lindley under the "Aristolochiaceæ." He adds:

The success which has attended its use in the cure of atonic deafness, especially that which appears in the post-meridian of life, will be best seen by presenting you with a case from my note-book.

Mrs. V., aged 56, consulted me in the month of June, 1851, complaining of being dull of hearing for the last ten years, which she attributed to the period of change. The cerumen was properly secreted, and the organ appeared perfect. It was only by shouting close to the head she could be made to understand; any very sudden noise or report produced a whizzing sensation, which completely confused all her ideas.

Previously to seeking my advice, she had been under some very eminent aurist, without receiving relief; stated that syringing always made her quite incognizant of sound. Her general health seemed good, with the exception of suffering occasionally from severe constipation. Catheterism of the Eustachian tube had been tried, and vapors passed through that channel to the ear, but with the same result as injecting into the external meatus.

Five drops of the tinct. guaco were dropped into the right ear, and secured by a small plug of gutta serena, the latter having a coating of colloid painted over it.

A pill of rhubarb and aloes was ordered every day after dinner; and three drachms of tinct. guaco, in six ounces of distilled water, for a mixture. Two tablespoonfuls three times a day.

Four days afterward the plug was removed, and cotton wool, dipped in guaco, substituted; the left ear was then plugged. In the following week, the clock striking in her parlor alarmed her, and I was sent for. The drops were now used every night for three weeks, and every day fresh proofs of returning function. At the expiration of two months hearing was perfect, and has remained so to the present date.

Part xxvii., p. 250.

DEFORMITIES.

Principles of the Treatment of Deformities.—The principles laid down by Delpech, in his *Orthomorphie*, published at Paris in 1828, are comprised the following rules:

1st. A tendon to be divided must not be exposed; and its divisions should be made by turning the instrument on one side, so that the line of the incision may not be parallel to the division of the skin; without this precaution risk of extoliation of the tendon is incurred.

2d. Immediately after division of the tendon, the divided ends should be brought into contact with each other, and kept in this position by a suitable apparatus during the entire period necessary for their union.

3d. Inasmuch as it can only take place by the intervention of an intermediate fibrous substance, this substance, before it has become firm, can, and should be, extended gradually and carefully, until it has assumed a degree of length equal to the shortened muscle.

4th. When this degree of extension has been effected, the parts should always be fixed in the position, and kept so until the new substance has acquired the requisite degree of consolidation. *Part x., p. 161.*

DELIRIUM.

Musk in certain cases of Delirium.—M. Recamier has most strongly advocated the use of this powerful antispasmodic in certain forms of delirium, occurring in the course of various febrile and inflammatory diseases. When pneumonia, as in certain constitutions, and in certain epidemics, is accompanied with marked symptoms of cerebral disturbance—a very embarrassing complication—the use of musk, either alone or in combination with calomel, has been often found to be of decided advantage. It is also very useful in the delirium which not unfrequently attends the course of erysipelas, and several other exanthemata; more especially in small-pox, during the maturation and desiccation of the eruption.

Musk is unquestionably one of the most potent, and least fallible antispasmodics that the Pharmacopœia contains: the only drawback to its general use is its expense. Fortunately assafœtida, galbanum, and good castoreum may very generally be substituted for their more costly analogue. In all cases of nervous agitation, unconnected with plethoric and inflammatory excitement, this class of antispasmodic medicines may be used with advantage. Camphor also is a very potent member of the same family; and few compounds are more beneficial than pills composed of musk or assafœtida and camphor—to which a few grains of calomel, and also some extract of henbane, may often be most judiciously added. We have witnessed most pleasing effects from this formula in several cases of puerperal mania. *Part ix., p. 77.*

Treatment of Delirium.—In almost every form of delirium, antiphlogistic measures are unnecessary, or even injurious; and the occurrence of delirium in almost any disease, but especially in rheumatism or gout, erysipelas, or typhus, should be considered an indication that it is necessary

to support the strength. With regard to the use of opium—it should be avoided, or used with the greatest caution, in those cases where delirium has a tendency to pass into coma, as in epileptic or hysterical delirium, and that from gout; but in wakeful delirium, such as the rheumatic, anæmic, and traumatic varieties, and delirium tremens, it may be given freely with great advantage. *Part xxi, p. 301.*

Treatment of Delirium — Delirium e potu. — The object here is to promote the elimination of the poison without depressing the vital powers unduly. This is best done by emetics, purgatives and sudorifics. Give the first if you have reason to believe alcohol or undigested food remains in the stomach. If the patient is violent, you may use mechanical restraint, applying, at the same time, cold to the head. Be very cautious in using blood-letting, on account of the great tendency to depression. If the stomach is highly irritable or inflamed, do not give antispasmodics, but apply mustard cataplasms to the epigastrium. Give ice or iced water, cold drinks, and prussic acid. If these fail, then leech the epigastrium, give morphia and creasote, effervescing draughts with potash, saleratus, ammonia, keeping up, at the same time, a free action of the bowels, by small and oft-repeated doses of sulphate of magnesia, dissolved in water. In cases where the true delirium tremens is complicated with the delirium e potu, we must combine, as far as possible, the two forms of treatment.

Of Bronchitis and Pneumonia.—Depression of the vital powers is common in delirium. If delirium come on after antiphlogistic treatment, immediately alter the plan, and adopt a stimulating one. There is great tendency to coma, especially after the antiphlogistic treatment. If coma come on, do not relax in giving support, and you may have to give stimulants. Add also free counter-irritation to the back of the neck; and it may be necessary to shave the head, and apply a blister to the scalp.

Of Epilepsy.—There are no direct means of cutting short the paroxysms of epileptic delirium. The more innocent means, as introducing salt into the mouth, and applying cold water, may be tried. The chief treatment consists in a cautious guidance through the prolonged attack. There is no necessity for local or general bleeding. If the pulse is strong, no stimulants are required; if weak and irregular, or quick and running, then they are useful. The head may be shaved; and if hot, cold applications, and small blisters applied in succession to the scalp. All means must be taken to prevent the patient injuring himself, and the gentler these are the better. If there is extreme wakefulness, give hyoscyamus or henbane rather than opium; and the cold douche or shower-bath is often very effectual in inducing sleep. The other drugs which may be administered are of the tonic kind, the most useful being the metallic tonics.

Of Erysipelas.—The treatment of this form of delirium involves the treatment of the disease itself. Erysipelas is dependent upon the introduction of a morbid poison attacking the skin, and proceeding to the gastro-pulmonary mucous membrane, or *vice versa*, inducing the secondary formation of abscesses, or the tertiary chronic inflammation and induration of various glands, with the deposition of scrofulous matter. Can we eradicate this poison by a bold stroke at the outset? If a large dose has been imbibed, the disease must pass through a certain course; and as there are no means of extracting it, we must guide the patient through

the various stages of the fever, and counteract its depressing and destructive effects. First, evacuate the bowels, with as little depression as possible; then give nutritious food, with stimulants, as brandy or wine, giving them frequently and at short intervals, and adding ammonia, bark, etc., if deemed advisable. If the stomach is irritable, or the patient opposes, or is disgusted with the medicines, give up the drugs and trust to food and brandy only. When delirium sets in, the patient wants more support and more stimulus; and the more freely they are given, the sooner the delirium will be subdued. If there is a tendency to coma, shave the head, and apply blisters freely; and if the delirium is decidedly of the active-kind, henbane, camphor, and hop are safer than opium, and may be cautiously given.

Of Fever.—1st. Of the low, muttering kind, the patient apparently unconscious, but capable of being roused by loud speaking. 2d. Delirium of the active kind, patient being wakeful, talkative, and needing watching, or perhaps restraint. This generally comes on very suddenly, but the first generally very gradually. In the treatment of typhus fever itself always give nutritious food and stimulants early. As there is no inflammation present in the brain when delirium comes on in typhus fever, do not bleed even locally. True, there is congestion; but it is only part of the general tendency, and therefore stimulate the capillary circulation, so as to promote the flow of blood, which tends to stagnate in the fine blood-vessels. Apply, therefore, several small blisters to several parts of the shaven scalp in succession: if there is not time to wait, apply a large one, cutting it in slips, so as to apply it to all parts of the scalp. If there are clear reasons for taking away blood, do it rapidly by expert cupping over the temples. Be very cautious in giving opium; but if the state of congestion is not obvious, and the powers not very low, one or two doses well-timed often do great good. In the delirium of this disease, stimulants are of the greatest benefit; and give them in larger and more frequent doses. The pulse serves as a useful guide: if it does not quicken, but improves in quality, under their use, especially if it diminishes in frequency, let them be continued.

Of Rheumatism and Gout.—This delirium occurs more frequently after bleeding than otherwise. But if the delirium does come on, it must not be allowed to continue, although the cardiac disease is present also. Opium is equally applicable to both, and it must be given to procure sleep, as in traumatic delirium tremens. Apply a blister to the region of the heart, and promote a free discharge from the blistered surface; avoid any bleeding or depressing treatment until all the delirious signs have passed away. Supply the patient constantly with food and with stimulants. Do not fear lest this plan should increase the cardiac affection; it appears to be the most effectual plan to cause the termination of it to be in resolution. If the antiphlogistic plan is persisted in, the delirium is increased, the powers of the patient exhausted, and effusion into the pericardial sac takes place. The delirium of acute gout needs the same treatment; but as it has a greater tendency to pass into coma, we must not be so ready to administer opium, but wait to observe whether there is any marked tendency to coma.

Part xxii., p. 64.

Danger of incautiously moving Patients in Delirium.—Dr. Todd lays great stress upon the danger of moving patients in a state of delirium, or

recovering from it ; and mentions some cases in which death immediately resulted from this caution not being observed. *Part xiii., p. 8.*

DELIRIUM TREMENS.

Treatment of Delirium Tremens.—The results of the different methods of treatment by Dr. Ware, will be more readily compared, if they are thrown together into a tabular form :

TREATMENT.	NUMBER OF CASES.	BLIND.	DIED.	RECOVERED.	COMPLICATED WITH ACUTE DYSPEPSIA.
Opium large doses.....	8	—	4	4	1
" small.....	7	1	2	5	1
Emetics.....	12	1	1	11	2
Bleeding.....	2	2	—	2	—
Eclectic.....	9	5	3	6	7
Quinine.....	1	—	—	1	1
Mercurials.....	1	—	—	1	—
Expectant.....	29	4	1	28	1
	60	13	11	58	13

It appears, that of fifteen cases in which opium constituted the principal remedy, six died ; whilst of fifty-four in which opium was not used at all, or only incidentally in small quantities, only five died. Still further, if we separate from these fifty-four, the nine cases in which the treatment was eclectic, and in which the mortality seems to have arisen from the continuation of acute disease, we have a remainder of forty-five cases, of which only two were fatal. Again, if we compare the mortality of those cases in which opium was pushed to the full extent advised by writers on the disease, with those in which no active remedy was employed, we have a mortality of one in two, against a mortality of only one in twenty-nine.

Part iii., p. 68.

Tartrate of Antimony with Opium.—Suggested in certain cases of delirium, in the advanced stages of nervous fever, and especially in delirium tremens. The following is the formula here prescribed, which may be varied in strength according to circumstances :

R Tartrate of antimony, four grains ; tincture of opium, one fluid drachm, camphor mixture, eight fluid ounces. M.

Of this mixture, a tablespoonful was given every second hour, or until sleep was produced.

Part vii., p. 10.

Treatment of Delirium Tremens.—Although Dr. Watson agrees with all practitioners of experience, that opium, in some form or other, is the grand remedy; yet he properly warns his readers that it is not to be given indiscriminately, or trusted to alone. In some cases it must be administered cautiously, if at all; in others it must be combined with depletion in some form; and in others, again, with strong drinks; while generally it must be combined with nourishment.

"No particular rules can be laid down that will suit all cases. After clearing out the bowels by a moderate purgative, you may give three grains of solid opium; and if the patient show no inclination to sleep after two or three hours have elapsed, you may begin to give one grain every hour till he does sleep. Or you may prescribe corresponding quantities of the acetate or muriate of morphia, or of laudanum, or of the black drop, or of Battley's sedative liquor. His room, meanwhile, should be kept dark and quiet. If he sleeps for some time he will awake calmer and more sensible, perhaps perfectly so; and you must withhold the remedy, or continue it in smaller or less frequent doses, according to the circumstances of the case. Sometimes the opiate treatment alone is quite enough; sometimes it is not. You meet with patients who resist very large doses of the drug; but who presently sleep or become composed if you put their opiate dose into a glass of gin or a pint of porter. Nervous exhaustion goes along with and augments the nervous irritability.

"If the patients pass many nights without sleep, they will die. I have tried various forms of opium; and I am quite satisfied with morphia."

Part ix., p. 72.

Treatment of Delirium Tremens — Cold Affusion—Tart. Emetic—Opium—Stimulants.—The most opposite plans of treatment occasionally succeed in delirium tremens; one practitioner succeeds by suddenly abstracting all the ordinary stimulants and pouring in large doses of opium instead; another succeeds by withdrawing the stimulants gradually, and giving more moderate doses of opium; and others employ no opium at all, or a very small quantity. It is certain that the powers of opium are very available in this disease, and will often be highly prejudicial if given too early. When the acute symptoms have abated, its effects will be best ascertained. Dr. Morehead, in common with many others, believes that the disease generally runs a certain course, and requires a given time to subside, and that the great art of treatment consists not in forcing sleep by large doses of narcotics, but in conducting the patient through the period of delirium by withdrawing all sources of irritation, by moderating or sustaining the circulation, and by calming the nervous excitement. For this purpose we may chiefly rely on the cold affusion, tartar emetic combined with opium, and the exhibition of stimulants in moderate quantities. The combination of tartar emetic with opium, as recommended by Drs. Law and Graves, of Dublin, forms one of the most powerful remedies which we possess, and has not yet been sufficiently appreciated by the profession. The tartar emetic may be given either to nauseate or not, according to the urgency of the case, and the degree of prostration already existing. We must remember that in many cases, instead of having high fever and congestion there is prostration and exhaustion from the commencement; in which cases it would not be good practice to give tartar emetic, but, on the contrary, gentle stimulants. Where the case is, however, of a sthenic

character, we shall find that half grain or even grain doses of tartarum with half a drachm of laudanum every hour, will constitute a very successful means of subduing the excitement and conducting the patient through the earlier stages. Of course the antimony must not be continued long. The combination of antimony or ipecacuanha with opium was a remedy well known in the last century. Dr. Curry mentions the fact well known in his time, that in this combination each ingredient counteracts or modifies very remarkably the effects of the other—the opium preventing or subduing the emetic properties of the antimony, and the latter suspending the stupefying power of the opium.

Part AL. p. 45

Delirium Tremens—Indications of Treatment.—Delirium tremens is usually defined as excitement with exhaustion. Excitement of the nervous system to an extent preventive of sleep, is frequently a leading feature in this disorder.

But the excitement of the whole nervous system which exists in delirium tremens is not dependent alone on loss of sleep. In addition to continued irritation by the alcoholic stimulus to which the nervous system has been subjected, another cause generally coöperates in these cases—that is, the absence of a sufficient amount of nutrition. Habitual drunkards are seldom tipsy, but they do not eat; they have no appetite, no powers of digestion; and the consequence is, that while they are in a state of continued intoxication, they are in a state of perpetual starvation. Inanition is indeed another cause of the exhaustion of the bodily powers generally, and of excitement of the nervous functions in particular. It is well known that in all cases of inanition the bodily powers are depressed, but the nervous function is the last thus to suffer; it remains excited, in fact, in the midst of a general state of depression, as we see in cases of continued starvation, privation of food, and exhaustion from other causes. In extreme loss of blood, or drains of other kinds which exhaust extremely, we find that the nervous system remains excited even in the midst of weakness.

The indications of treatment are three-fold. First, to compose that undue excitement of the nervous system which prevails, and which is exhausting the other powers. This is done by opium and other narcotics. Secondly, to support those functions which are failing, and which are already somewhat exhausted that life may be in jeopardy. Although sleep is needed, yet strength is required to support life, and although sleep be obtained, perhaps the excitomotor function may be exhausted so low, that it may prove the sleep of death—it may be a reduction to a state of sinking. Under such circumstances—and they often occur in extreme cases of exhaustion in connection with delirium tremens—it becomes a leading indication to support the system by stimulants, and food if possible. But there is a third indication which should never be lost sight of, in the treatment of delirium tremens; that is, to purify the system from the poison that is in it. If it be a case of recent debauch, there is an alcoholic stimulus to the system, and the longer it remains there the more mischief it will do. And in these cases there are other poisons besides the alcoholic stimulus. The body is a source of poison to itself; and if the vital powers are greatly reduced in their energy, the process of self-purification will not go on; the excretory functions are imperfectly performed; the urine is not freely secreted; urea, which is a poison in itself, accumulates; the bile pre-

bably accumulates in like manner and the result of this in an extreme degree is to cause a poisoning of the system.

It is therefore a leading object to purify the system by means of an increase of the secretions, and this is generally done practically by means of purgative and diuretic remedies. *Part xii., p. 48.*

Delirium Tremens treated by Ammonia.—Dr. Scharn recommends the employment of ammonia, in the form of the pyro-oleaginous solution, or of the succinate of the alkali. By means of this very simple and innocuous remedy, he has succeeded, he assures us, in curing a great number of very severe cases of the disease.

Ammonia by itself will rarely suffice to subdue the excitement and allay the restlessness of this neurosis: opium must almost always be associated with it. We have often used, with good effect, the ammoniated tincture of valerian, and the liquor opii sedativus—not forgetting the application, at the same time, of warmth to the feet, and of cooling spirituous lotions to the head. When symptoms of febrile or inflammatory irritation are present, it may be necessary to resort to leeching, and the administration of effervescing saline draughts with antimonial wine. *Part x., p. 31.*

Delirium Tremens.—Whilst the tongue and mouth are moist, and urine abundant, don't be afraid of giving opium for the purpose of procuring sleep when needed; but be careful if these symptoms are not present. *Vide Dr. Corrigan's "Treatment of Typhus Fever." Part xiv., p. 20.*

Delirium Tremens.—Mr. Corfe says:

This is a disorder peculiar to drunkards; it usually creeps on when they are deprived of their accustomed stimulus; but I have repeatedly noticed that men who are in the habit of drinking freely, and who at the same time eat largely of animal food, twice, or even three times a day, rarely become the subjects of this disease; but if they fall off in their appetite for this kind of food, and still continue to take their usual quantity of beverage, bilious diarrhœa, perhaps, supervenes; they become disordered, dose themselves with salts, etc., and perhaps get bled, and the disease soon sets in with its usual fierceness of excitement. Such is the case with the brewers' draymen, and porters, potmen, etc., in London, amongst which class of persons the far greater number of these cases occur. Such is the fact, at least, with the idiopathic form of this disease; but the traumatic variety occurs in the surgical wards continually, and even here, it may be observed, that if a drayman is brought in with a fractured thigh, and is able to continue to eat his accustomed quantity of animal food, with a fair allowance of porter, etc., he is most likely to escape the disease altogether. There is, at this moment that I write, a man in the accident ward, from one of the largest breweries, with severe laceration of the leg, and who has been allowed by Mr. Arnott, his surgeon, five pints daily of the very best porter, and which is certainly equivalent to a gallon of the publican's liquor in point of strength, and he has also been allowed full meat diet, extra bread, etc., and has hitherto escaped all symptoms of the disease.

It should be observed that every case of threatening delirium tremens is preceded by more or less biliary derangement; and, as these men rarely enjoy active or healthy secretions from their alimentary canal, it does appear, from the observation of a large number of cases in this hospital, that

the disease is purely hepatic in its origin. This opinion is entertained by our talented physician, Dr. Seth Thompson, who has most successfully treated some of the worst cases of this disorder with large and repeated doses of calomel, followed by brisk cathartics; and he has never been obliged to resort to opium at all, sleep having succeeded the active purging of the hepatic system. It has long since struck my mind that the origin of the disease springs from a sudden, or, it may be, a gradual poisoning of the blood, by means of a chemical alteration in the bile and urine, and that some of the elements of one or both of these secretions are carried through the circulation. My chief reasons for drawing these conclusions are the following: Since I have had the opportunity of witnessing the admirable practice of the above-named physician, the disease has gone away, in a most decided manner, under sharp purgation with calomel, etc., and the improvement is invariably coexistent with the passage of numerous dark, offensive and deeply-bilious evacuations. The onset of the disease is ushered in with loss of appetite, foul tongue, giddiness, nausea, and an effort to throw off some of the morbid cystic bile, sickness and bilious diarrhoea may probably set in also. Again, a very large number of cases, and those of the worst form, present themselves with symptoms of passing by urea. It is stated that they have had one or more fits; these are distinctly epileptic, and exactly resemble those attacks which sometimes occur in persons laboring under albuminous disease of the liver, and in whom the disappearance of urea from the urine, and its presence in the circulating fluids, has been repeatedly detected by Dr. Christison and others. In fatal cases of delirium tremens, an epileptic fit is often the forerunner of death.

Mr. Corfe speaks highly of the use of cold affusion in cases where there is very violent excitement, by means of a constant stream of cold water, poured from a height upon the head, face and chest of the patient, who is afterward to be rubbed dry with coarse towels.

Mr. Corfe has always observed this cold affusion to be followed by a calm, long sleep, from which the patient awoke almost entirely well. In all cases of delirium tremens, however, take care to distinguish between that brought on in regular drinkers when they leave off their stimulus suddenly from any cause, and the other kind, which is caused by a sudden and violent fit of drinking continued for a few days together. The first kind is from *exhaustion*, the second kind from congestion and even inflammation of the brain. The first kind is the true *delirium tremens*; the second kind may be termed *delirium ebriosorum*.

Delirium tremens may be caused by other cerebral excitants besides intoxicating liquids. Dr. Gordon relates a case which was caused by tobacco.

Delirium tremens has repeatedly been treated successfully by ether and chloroform, when all other treatment has failed. Such a powerful remedy must, however, in such cases, be used very carefully, when the brain is already over-excited. Dr. Anderson relates a very severe case which he resisted for several days the influence of opiates, purgatives, blister to the nape, ice to the head, etc., which was speedily relieved by the inhalation of chloroform.

Part xvii., p. 50.

Chloroform in Delirium Tremens.—[Dr. Rogan was called to visit a well-marked case of delirium tremens. He says:]

I immediately gave him a drachm of laudanum in half a glass of brandy, and directed it to be repeated every hour till he slept; he was also to be well supplied with strong beef tea. He took three doses of the medicine without its causing any tendency to sleep or abatement of the delirium. His pupils were now so much contracted, that I hesitated to give more opium, and determined to try chloroform. I administered it on a handkerchief. In a short time he was under its influence, lying quiet, and breathing naturally. I kept up its effects for about three quarters of an hour, and then withdrew it. He roused up shortly after, quiet in manner, and evidently better. In about ten minutes he fell asleep, and slept for seven hours without intermission. When he awoke he was quite sensible, and much refreshed. He took some food, and again slept for some hours longer, and awoke quite well, and able to return to his work. The above is a good example of the benefit of chloroform after opium has been pushed as far as seems compatible with safety.

Part xxvi., p. 43.

Delirium Tremens produced by Abstinence from Tobacco.—There is another very potent drug in common use among the lower orders, the probable effects of suddenly relinquishing which have been too little considered, and respecting which the event of a case lately under the care of Mr. Curling, appears to offer a valuable hint to the practical surgeon. A withered old woman, a gin drinker and a habitual smoker, was admitted on account of a severe burn. Stimulants were from the first freely allowed her, and opiates administered, but in spite of them, she continued extremely restless, wandering at times, and quite unable to sleep. Her manner and aspect, indeed, much resembled those of delirium tremens. At this juncture, several days after admission, Mr. Curling ordered that she should be permitted to smoke. The salutary influence of the measure was soon apparent—the woman became quiet and tranquil, and on the next night slept fairly. All tendency to delirium disappeared, and she afterward progressed steadily to recovery.

Part xxviii., p. 67.

Use of Chloroform in Delirium Tremens.—In delirium tremens arising from the leaving off of stimulants, which have been habitually taken in excess for a long time, give opium and moderate doses of alcohol, with good broth and nutritious diet. But in delirium tremens of a sthenic character, arising from the direct action of alcohol on the brain, taken lately but not habitually in excess, cases which are inflammatory and congestive, avoid both opium and alcohol, and try chloroform, but be careful of the above distinction in the two kinds of cases. Give half a drachm of chloroform in a draught every two hours. This may be increased to a drachm; but watch the respiration, and if slow and labored, give a little compound spirit of ammonia, to rectify the sedative effects of the chloroform. We have seen chloroform given in this way in hysteria, have rather a serious effect on the respiration, the same as from inhalation. All bad effects, however, are rapidly obviated by a drachm of compound spirit of ammonia in water, and repeated in a quarter or half hour if necessary.

Part xxx., p. 40.

Delirium Tremens—Chloroform.—You may give chloroform with safety in those cases where stimulants have been suddenly left off. First, give half an ounce of whisky in the yolk of an egg, with a little sugar and nutmeg, and when well mixed, and just before being taken, add one

drachm of chloroform. Give also strong beef tea, with a chop, and a little porter, according to the case. If the first dose of chloroform does not produce sleep, give a second, a third, and a fourth, and even a fifth and sixth, at intervals of an hour or so, according to the violence of the case. The great point is to keep the patient *well up* with food, such as brandy, whisky, or broth, beef tea, chop and porter, etc.—all these to be used judiciously. You may begin to give the chloroform in half drachm doses every three or four hours, till you feel your way with it, and then increase it, and give it, if necessary, every hour. *Part xxii, p. 1*

Delirium Tremens—Chloroform.—A case of delirium tremens is recorded: the subject, a stout, healthy man, in which laudanum and hyoscyamus having completely failed in moderating the violence of the symptoms, chloroform was administered; in five minutes he fell asleep, and continued sleeping for six hours, when he awoke, and the symptoms of the disease had vanished.

“We apprehend that the *indiscriminate* use of chloroform in delirium tremens would be highly dangerous. If a sly drinker, one who habitually gets nearly drunk, be compelled to leave off his stimulants suddenly, he will probably be attacked with delirium tremens; but in this case the use of chloroform would be hazardous. You have an impoverished and energy, an exhausted nerve force. Small doses of brandy, and occasional administration of small quantities of beef tea are here called for, where, as in the case mentioned above, the man is not a habitual drunkard, and the constitution is good—in fact, if we may use the term, the disease is more *asthenic*, chloroform will be found invaluable; opium and brandy injurious.” *Part xxii, p. 2*

DENTITION.

Diuresis as a Revulsive Action in Diseases of Infants.—Dr. Simpson prefaces his remarks by alluding to the frequent inactivity, and, sometimes, the almost complete suspension of the functions of the lower kidneys, while the system of the child is suffering severely from dentition.

“As long as the kidneys act freely, there is little or no risk in the symptoms of mere dentition, however severe and distressing these may be. The same remark is, we believe, strictly applicable to the progress of most cerebral affections in children.

“To promote this critical diuresis, a purgative, composed of *senna* and *salts*, and then frequently repeated doses of nitre, are the simplest and most efficient means that can be resorted to.

“The chief danger of dentition is referable to the vascular excitement of the brain.

“Now it is a common observation that almost all headaches are promptly relieved by whatever stimulates the kidneys to throw off a quantity of urine.

“Before closing these remarks, we may allude to the notable effect which diuretic medicines sometimes exert on the progress of hooping-

cough. The administration of nitrated drinks, and of minute doses of digitalis, seems often to promote the crisis of the disorder in its earlier stages; and, in its more advanced and chronic form, the use of tincture of cantharides has been recommended by Dr. Watts and others, as one of the most efficient antidotes. The practitioner will, therefore, do well to pay particular and uniform attention to the condition of the bowels and kidneys in all the diseases of infancy and childhood." *Part i., p. 24.*

Scarification of the Gums during Dentition.—Dr. Marshall Hall says:

"There is no practical fact of the truth and value of which I am more satisfied than that of the effect and efficacy of scarification of the gums in infants, and not in infants only, but in children.

"It is to the base of the gums, not to their apex merely, that the scarification should be applied. The most marked case in which I have observed the instant good effect of scarification, was one in which *all the teeth had pierced the gums!*

"Better scarify the gums *unnecessarily* one hundred times, than allow the accession of one fit or convulsion from the neglect of this operation, which is equally important in its results, and trifling in its character. And it is not merely the prominent and tense gum over the edges of the teeth which should be divided; the gums, or rather the blood-vessels, immediately over the very *nerves of the teeth*, should be scarified and divided, as you would divide the vessels of the conjunctiva in inflammation of that membrane.

"Now, whilst there is fever or restlessness, or tendency to spasm or convulsion, this *local blood-letting* should be repeated daily, and in urgent cases even twice a day."

Part ix., p. 90.



DIABETES.

Diabetes Mellitus successfully treated by Ioduret of Iron.—[This case was admitted into the Hôtel Dieu, having experienced the premonitory symptoms of diabetes three weeks previously, which were now completely confirmed; he passed fifteen quarts of urine daily, which contained a considerable quantity of sugar.]

The treatment consisted in restricting him to animal diet, the administration of a bottle of claret daily, with a flask of Bagnols wine, broth without bread, and lemonade, etc., for drink; he also took four pills, each containing five grains of the ioduret of iron, in the twenty-four hours. Under this mode of treatment the quantity of urine discharged soon diminished; after the third day the man passed only twelve quarts; during the subsequent days the quantity underwent a still greater diminution, and the thirst, together with the other symptoms of diabetes, subsided.

[The ioduret of iron must have had considerable effect in this case, as the usual diet of animal food, etc., recommended in these cases had previously failed in doing good till combined with this medicine.]

Part vii., p. 51.

Inhalation of Ammonia Gas.—Suggested in *Dryness of the Fauces accompanying Diabetes.*

Part vii., p. 61.

Treatment of Diabetes.—Case cited in which the nitrogenizing plan of treatment recommended by Dr. Barlow, of Guy's Hospital, was attended with excellent results. The treatment was commenced by giving five grains of the sesquicarbonate of ammonia every three hours, with coffee and bacon for breakfast, animal food and cruciferous vegetables for dinner. The skin was stimulated by friction, and the patient well clothed in warm flannel. In four days the urine was diminished in quantity from twenty-four to fourteen pints daily. The ammonia was then increased to five grains every two hours, and very soon the quantity of urine voided was only eight pints daily; in thirteen days more only five pints, and in twenty-one days the drink taken in the twenty-four hours was two pints and the urine four pints. *Part viii., p. 73*

Symptoms in common with Bright's Disease.—"There are several points of view in which diabetes mellitus resembles Bright's disease; in both there is a suppression of the functions of the skin; in both there is a tendency to secondary complication; in each there is a new element added to the urine; in both the serum is apt to become milky from admixture with a butyraceous fat; in both there is a tendency to increased watery secretion, in the one case a flux, in the other dropsy; in both there is a diminution of albumen in the blood." *Part ix., p. 8*

Tests for Diabetic Urine.—Dr. Bird has placed before us the different tests which are generally the best and most easily adopted. He first mentions *Hungford's test*, which, however, is too uncertain to be of any practical value. Perhaps the best test is the one called *Trommer's test*. This, which is the latest test suggested for the detection of sugar, is as follows:—"Add to the suspected urine contained in a large test tube, a few drops of a solution of sulphate of copper; a very inconsiderable troubling generally results, probably from the deposition of a little phosphate of copper. Sufficient liquor potassæ should then be added, to render the wine strongly alkaline, a greyish-green precipitate of hydrated oxide of copper falls, which, if sugar be present, wholly or partly redissolves in an excess of the solution of potassa, forming a blue liquid, not very unlike the blue ammoniuret of copper. On gently heating the mixture nearly to ebullition, the copper falls in the state of sub-oxide, forming a red and copious precipitate. If sugar is not present, the copper is deposited in the form of black oxide." This seems to be a most delicate test for the presence of sugar, and will readily detect it in the urine, even when very largely diluted. The other tests are, by the *growth of torula*, by the *development of fermentation*, and *Runge's sulphuric test*. *Part ix., p. 10*

Diabetes—Effect of Climate in Treatment of.—Perhaps the treatment of diabetes by an animal diet has met with more success, at least as a palliative, than any other, and it would probably be still more successful if it could be rigidly followed up, which is next to an impossibility. The use of opium is another useful palliative. Diaphoretics are especially indicated by the dry, parched skin, which so generally exists, and which is often one of the earliest symptoms. A return of the natural functions of the skin is also one of the earliest symptoms of amendment. This has been remarked, many years ago, by Dr. Christie, who found the disease much more manageable in Ceylon than in this country. It is, moreover, seldom seen in very warm climates. Dr. William Hunter, during a long residence in Bengal, never saw a case; and Dr. Murray, during a res-

dence of seven years in the West Indies, never saw or heard of a case commencing there. From several cases which this gentleman has published, we should say that a residence in a very warm climate is a most powerful means of restoring the healthy function of the skin, and curing the disease.

Part xi., p. 81.

Case of Diabetes Mellitus treated with Sub-acetate of Lead.—Mr. Kirby's patient, twenty-one years of age, of nervous temperament, and affected with serious pulmonary disease, was passing nine quarts of urine in the twenty-four hours—it was saccharine; the thirst was not excessive, but the skin was remarkably dry and of a chalky feel. Mr. K. states:

I prescribed one grain of subacetate of lead, with a minim of sedative opium, and a very minute portion of ipecacuanha, to be taken every second hour; with egg diet and mulled porter, as his ordinary drink. In four days he announced a remarkable decrease in the quantity of urine, and a considerable improvement in his general feelings. In a month from this date, the pills which had been steadily used were laid aside, the urine being nearly healthy.

Part xiii., p. 123.

Treatment of Glucosuria (Diabetes).—[For a number of years, M. Bouchardat has been engaged in the study of the pathology and treatment of diabetes, and the numerous facilities he has enjoyed, being *pharmacien en chef*, at the Hôtel Dieu, at Paris, render the results of his researches of the utmost practical importance.]

Diet.—Strictly forbid all farinaceous substances, as those into which starch in any way enters. Gluten bread is of great value; that is, bread made of flour that has been deprived of the chief part of its starch. The flour of wheat is composed of gluten and starch, in the proportion of one of the former to three or four of the latter; and the two principles may be readily separated by washing out the starch from dough. It satisfies the cravings of the appetite. Animal food, with eggs, milk, butter, and cheese, are proper. Also the following vegetables: spinach, endive, lettuce, sorrel, asparagus, haricots verts, cabbage of all kinds, along with fat pork or salt bacon; cresses with oil, and hard-boiled eggs. Fresh gluten, with butter, and cheese grated upon it, is an excellent dish. For dessert, allow olives, almonds, filberts, and walnuts; occasionally, and in small quantities, allow apples, pears, cherries, currants, gooseberries, strawberries, raisins, and pine-apples. *Drinks:* The French wines, Bourdeaux and Bordeaux, about a pint in the twenty-four hours; they are astringent; sometimes the quantity is to be increased, but the least approach to inebriety is injurious. Some patients are made worse with wine. Beer is injurious. Coffee is good, and should be taken without sugar, or the quantity of sugar should be very small. Lemonade and drinks of this class are injurious. *Clothing:* Protect the body from sudden chills, by clothing it in flannel. *Exercise* should be carefully regulated; the patient should engage in those exercises in which he takes pleasure; but fatigue is to be avoided. Baths are not of much use; occasionally a tepid bath may do good; swimming in the sea has been found very useful.

Medical Treatment.—Carbonate of ammonia, 77 grains; rum, 310; water, 1550 grains. One third to be taken half an hour before each meal; or give it as a bolus (eight grains), with treacle, from two to ten to be given every night.

Give Vichy water. The alkaline bicarbonates, particularly soda, are very useful.

Dover's Powder and Opiates.—The former is very useful; ten grains at bedtime. Crude opium and morphia often disorder the stomach.

Theriac divina 3ss. to 3j., every night; a drachm contains one grain of opium.

Chalybeates and Tonics.—When there is decided pallor of skin, resembling chlorosis, give tonic bitters with iron. The pulverized iron, or iron reduced by hydrogen, is the best form of chalybeate.

Emetics.—Commence the treatment by giving an emetic and afterward a purgative, to clear away anything injurious in the prime vie. Emetics are of no use afterward, except to combat certain symptoms.

Lime-water, calcined magnesia, alkalies, nitric, phosphoric, and sulphuric acids, alum, tannin, and other astringents, are of little if any use.

Bleeding.—General bleeding is always injurious. Leeches or cupping to different parts, as the stomach or anus (as symptoms indicate), will be found useful, viz., where there is epigastric tenderness or suppressed hemorrhoids.

The chief reliance must be placed on dietetic and hygienic means.

Part xiv., p. 102.

Diabetes.—Glucose, when in contact with alkalies, acquires great affinity for oxygen (as we find by its decomposing oxide of copper); by this means it is consumed in the blood, and converted into water and carbonic acid. Diabetes arises, M. Mialhe is of opinion, from a deficiency of salts to effect this change; therefore give alkalies freely; if this is done, amylaceous food may be allowed.

Part xv., p. 130.

Source of Fallacy in Testing for Sugar in Urine by Moore's Test.—Dr. Rees has discovered a source of fallacy in Mr. Moore's otherwise excellent test for sugar (that of boiling with liq. potassæ), which is that if the liq. potassæ contain lead in solution, it will be united, in boiling, to the sulphur of any albumen contained in the urine, and thus produce a brown color. To guard against this, the liq. potassæ should be kept in a bottle of green glass, which contains no soluble lead; and should be tested with hydrosulphuret of ammonia, from time to time.

Part xv., p. 141.

Turpentine in Diabetes.—[An anonymous contributor to the *Lancet*, stating that he has a patient who has had diabetes for ten months, during which the minimum quantity of water passed daily was nearly two gallons, goes on to say:]

About six weeks since, alarming hemoptysis appeared (phthisis having supervened), to relieve which I administered spirits of turpentine. With the first dose the quantity of water diminished greatly, and after she had taken two or three doses of turpentine the urine was passed in its normal quantity, though not in its normal condition, as I could still obtain sugar by evaporation. I regarded this improvement in the diabetes as a mere coincidence, but on withdrawing the turpentine the water again increased, and that dreadful thirst, which had been absent, returned.

As the quantity of urine passed continued in very large quantity, I again had recourse to turpentine in the form of *Chio turpentine*.

Instantly, as by magic, the quantity of urine decreased, has remained so, and I well know that were I to omit the turpentine for one day, two gallons and a half of water would be the result. *Part xvii., p. 123.*

Bread for Diabetic Patients.—It appears to be now generally admitted, that, in the treatment of diabetes mellitus, amylaceous matter should, in a greater or less degree, be excluded from the diet; but as is well known, under such restriction of the food, the diabetic patient soon becomes weary of the ordinary kinds of azotized matter, as beef, mutton, etc.; hence various substitutes for common bread have been proposed.

Mr. Palmer's recipe: Take the ligneous matter of sixteen pounds of potatoes, washed free from starch; three quarters of a pound of mutton suet; half a pound of fresh butter; twelve eggs; half an ounce of carbonate of soda; and two ounces of dilute hydrochloric acid. This quantity to be divided into eight cakes, and in a quick oven baked until nicely browned.

It is, as must be obvious, an expensive article, but with many diabetic patients this will not be an objection of consideration. It is somewhat improved in taste by being slightly toasted. At first, gum arabic, in sensible quantities, was introduced into the bread, on the ground of the assertion of Professor Graham, that when that substance is taken by a diabetic patient, the proportion of sugar evolved from the system is not thereby increased, and that consequently, it might probably supply matter for pulmonary oxidation. However, it was found that it rendered the bread tenacious and disagreeable, so that its use was subsequently abandoned.

Dr. Evans has suggested, that the bread might probably be improved by the addition of a certain proportion of bran; and accordingly, Mr. Palmer has already made some experiments upon the addition of bran, and with a satisfactory result. *Part xix., p. 112.*

Deficiency of Alkali in the Blood, a Cause of.—It is probable that a deficiency of alkali is the reason why the sugar in the blood is not converted in diabetes, as it is in health, into carbonic acid and water. This circumstance, then, gives one indication of treatment, and the emaciation and tendency to phthisis lead to another. In the fulfillment of these indications, cod-liver oil and liquor ammonia have been given with advantage; the patient beginning with half an ounce of the oil and five drops of liquor ammonia, thrice daily, and gradually augmenting the dose to five or six times the quantity. *Part xxi., p. 104.*

Diabetes.—Alkalies have proved more valuable than any other kind of treatment. At the same time, substances should be given which cannot be converted into sugar, especially fatty substances, which can be used in the process of respiration. Alkalies have more power in those cases of stout subjects which bear some relation to gout, than in the more severe and confirmed cases where there is great emaciation. *Part xxv., p. 155.*

Diabetes.—The principal indication being to prevent the elaboration of the saccharine poison in the stomach and to restore defective digestion, Mr. Hogg endeavored to find some medicine which would effectually arrest the saccharine fermentation. This he tried to effect with the sulphuret of arsenic, which was prevented being converted into a soluble sulphuret by combining the liq. arsenicalis with the hydrosulphuret of ammonia, the

following being the form: liq. arsenicalis, ʒij.; hydrosulphuret of ammonia, mxx.; tinct. henbane and lavender, each ʒij.; infusion of buchu, ʒiij. In two cases in which this remedy was applied it was successful.

Part xxv., p. 159

Permanganate of Potash in Diabetes.—Mr. Sampson remarks, that in some cases of diabetes—long after the sugar has disappeared from the urine—the quantity of the urine remains too abundant, and its specific gravity too low. He has attributed this to imperfect action of the digestive and assimilative functions. To remedy this, Mr. Sampson sought some remedy which would give out oxygen, when taken into the stomach. Chlorate of potash having failed, the permanganate was tried; speaking of which, Mr. Sampson found this medicine of essential service in several cases of obstinate dyspepsia, especially when there existed a profusion of urine; its effect in speedily diminishing the quantity of that secretion has been strikingly marked, and has usually been followed by improvement in the general health.

Give the permanganate of potash, beginning with 2 or 3 grains three times a day, and add one grain to each dose every third day, unless it be found to disagree.

Part xxvii., p. 166

Treatment of Diabetes.—It may be observed that porter increases the sugar in diabetic urine; but claret and spirits, as brandy, whisky and rum, do not; and what is more important still, milk scarcely increases it at all, even when the diet consists mainly of it, as the milk sugar is not easily converted into glucose within the body. As diabetic patients sometimes go off phthisical, cod-liver oil is a valuable remedy, and large quantities of it may be taken in this disease.

Part xxix., p. 171

Treatment of Diabetes.—The following treatment has proved very useful: A meat diet; a warm bath each alternate day, three grains of Dover's powder three times a day, and five grains of the same with five of ammoniac powder at bedtime; with saline draughts of the phosphate of soda and tartrate of potash to regulate the bowels.

Part xxix., p. 174

Diabetes treated by Alkalies.—Give lime-water and hartshorn. This was a prescription of Dr. Colles of Dublin, and though unable to explain the reason of its value, it proved nevertheless in many cases successful.

Part xxix., p. 176

Treatment of Diabetes Mellitus by Rennet.—The following was the treatment in a successful case of this disease. The diluted mineral and hydrocyanic acids were taken for some months. The diet was limited to butcher's meat, fish, eggs, milk, and bran-bread. Fresh vegetables, such as cabbages, were taken occasionally. Brandy and water was allowed as a drink. A dose of rennet was taken after each meal.

Part xxix., p. 177

Employment of Torula Cerevisia in Diabetes Mellitus.—To prevent the arrest of the conversion of starch at the stage of sugar when undergoing the process of digestion, Dr. Herapath was led to employ the torula in a case of diabetes in which the patient, previous to treatment, had been voiding urine of specific gravity 1044, and containing 850 grains of sugar in the imperial pint. Within two days of the employment of this substance, the specific gravity sank to 1020, and the sugar to 300 grains per pint. By steadily pursuing the same course during six weeks, the sugar even-

appeared altogether; the urine assumed its healthy character; and he lost all symptoms of his ailment, regaining his usual health and . Since that time, he has rapidly recovered his flesh. exhibited in this highly satisfactory case in that form in which it is employed by confectioners, and known by them as German

ose given in this case was one tablespoonful twice or three times milk. It was thus rendered very palatable. At first, the only ailment felt was a slight nausea, sometimes passing into actual vomiting and eructation of carbonic acid probably; by giving the remedy after these disagreeable symptoms disappeared, and it was then borne well. It was further serviceable in removing the obstinate constipation which had previously existed, and produced regularity in the alvine motions.

Part xxx., p. 75.

For Sugar.—If a freely alkaline solution of chromate of potash be mixed with urine suspected to contain sugar, and boiled, the liquor will acquire a deep sap-green color, arising from the decomposition of the chromate, the reduced oxide of chromium being held in suspension by the albumen. Such is the sensitiveness of this test, that 5 or 6 drops of saccharine diffused through water is easily detected. Therefore, always use a mixture in equal parts of a solution of the neutral chromate of potash and liquor potassæ. This should be labelled "*Test for Sugar.*" Put a piece of white paper at the back of the test tube will allow the color to be seen.

Part xxx., p. 77.

Diets.—You cannot restrict patients exclusively to animal food. Let food, however, predominate, and mix with it such vegetable matter as will not yield much sugar. Give succulent vegetables and well fermented beer. Insist on regular exercise and warm flannel clothing, with friction of the skin, always remembering that the skin and muscles are vicarious of each other to a considerable degree. Don't give food if you can avoid it, but mild mercurials occasionally; ox-gall also useful, given so as to mix with the food as soon as it has been got into the stomach. Crenasote, half a minim, given at the time of taking food, has been very useful. Give also strychnine, quinine, or cascarrilla.

Part xxxi., p. 95.

Diets.—[An anonymous writer recommends that in this disease we give the salts containing oxygen in feeble combination, such as the chlorate of potassa, or, still better, the permanganate of potassa. Dr. Williams has, however, failed in seeing any advantage from these medicines. In an interesting paper read before the Harveian Society, he gives a series of cases, in which cerebral disease and injury were the direct causes of diabetes, and with the relief to the cerebral mischief by treatment directed to the brain alone the diabetes vanished.]

First case, which suggested all my subsequent experiments and observations, was that of a railway guard, stunned by a blow from the handle of a pickaxe, when revolving with force. Concussion and diabetes ensued. In this case I have been able to trace the commencement of the disease to the concussion.

One patient had fallen downstairs, struck the back of his head, and was stunned, nine months before admission; the same date he gave as the commencement of his diuresis. Another had been stunned by the fall

of a piece of timber from Victoria Tower, which injured his arm, and had been diabetic ever since. This man was improving, but left the hospital, because he would not have a seton; but is, I understand, now at St. Bartholomew's, with the seton. Another man, now in King's Ward, traced his disease to a kick on the head from a horse, from which he suffered severely at the time.

Another group of cases has presented itself, whose history does not record any accident, but which have been cured by treatment directed to the brain. I have only three of these, a small proportion to the whole, but invaluable as to their importance for induction.

Another important group consists of cases where the cure has been spontaneous or accidental. I have seen diabetes in its most aggravated form subside within a few hours; but pulmonary deposit, ending in a tubercle, supervened.

Mr. Clapton, our very able resident assistant apothecary, who has written these cases with great care and interest, informs me of a case of a tradesman in the country who was obliged to part with a large practice on account of being the victim of diabetes, and unable, from his consequent debility, to pursue his profession. After suffering great emaciation and debility, a large anthrax on the nape of his neck occurred, which extended toward the occiput and down the back, and was nearly fatal to him, but thanks to port wine, brandy and quinine, he recovered not only from the carbuncle, but also from the diabetes, and is now quite well.

Mr. Amphlett, of Birmingham, informed me of a case of diabetes in a person of a wealthy manufacturer, whom he treated upon the old plan of animal diet for some months, without much benefit, when he was suddenly seized with an attack of apoplexy; for this he was purged and cupped, after which there was no more diabetes.

I must also mention, that pulmonary disease, or congestion, is not an essential part of diabetes, though it does frequently coexist. In two aggravated cases now in King's Ward, the lungs are quite clear. Dr. Barlow and myself took some pains in examining them, to ascertain the fact in consequence of your correspondent's assertion, which, if universally true, would be an important point.

With regard to remedies, our attempt at specific treatment must prove a failure.

Address your remedies to the brain, instead of the stomach or kidneys. Apply blisters, cold lotions, and setons to the head and neck. Apply a continuous galvanic current from the nape of the neck to the epigastrium. Use Strongfellow's or Pulvermacher's portable electro-voltaic battery for this purpose.

Part xxxi., p. 32.

Diabetes Mellitus.—Gluten bread, made according to the following formula, contains the smallest possible quantities of the elements of sugar. Fresh moist gluten, 24 oz.; bicarbonate of ammonia, 3ij. gr. xij.; common salt, 3iss.; powdered carraway, 48 gr.; wheaten flour, 4; oz.; powdered bran, 1½ oz.; salt butter, 4 oz.

The above quantities yield 24 oz. of bread, when baked. It should be baked in small and flat circular tin pans, placed on a moderately hot hearth.

Part xxxii., p. 33.

Diabetes.—This disease is more under the control of regimen than medicine. Milk is very proper in these cases, as diabetic sugar is not

generated from milk sugar. Gluten bread has recently been much recommended, but fine bran bread is preferable. Maccaroni is also highly praised. Among medicines, citrate of ammonia and opiates are, perhaps, the best. Some recent researches would point to diabetes as a peculiar form of nervous disease, rather than a renal or hepatic affection.

Part xxxiii., p. 237.

Diabetes.—*Opium* has a most powerful effect in diminishing the quantity of urine, but does not cure the disease. *Ammonia*, in some cases, has the power of reducing the urine, the specific gravity, and the quantity of sugar. *Cod liver oil* improves the general condition of the patient, and reduces the urine. The combined use of cod liver oil, opium, and ammonia, effects the most prompt and permanent benefit. *Blisters* to the hepatic region are useful. A *mixed generous diet* is the best; restriction is rather baneful than beneficial.

Part xxxiv., p. 112.

Diabetes.—The essence of diabetes is an arrest of the normal changes taking place during the digestion of starchy matters at their second stage, or that of conversion into sugar, the cause being a deficiency or vitiation of the digestive fluids. Now, if this cause can be obviated or removed, we have a partial or total disappearance of sugar from the urine. We have in rennet or pepsin a remedy which effects a healthy digestive process in an unhealthy viscous. Under its use the sugar partially or entirely disappears, and there is consequent improvement in the condition and health of the patient.

Part xxxvi., p. 117.

Diabetes.—In a case lately treated by Dr. W. Budd, at the Bristol Royal Infirmary, the patient was allowed an unlimited amount of sugar, with the view of supplying the material, the loss of the elements of which from the body, causes the wasting and loss of strength. No remarkable alteration resulted from this treatment, either as to the increase or diminution of sugar in the urine, but the patient gradually seemed to gain strength, and two months after the adoption of this new plan of treatment, although he was taking eight ounces of sugar and six of honey daily, he was only passing three pints of urine, of specific gravity, 1032.

Part xxxvii., p. 98.

Glycogenesis—Formation of Sugar.—Sugar ingested directly as sugar, on its passage through the liver, converted into an emulsive substance, which much counteracts the tendency to emaciation in diabetic patients. (The sugar found naturally in the blood, is secreted by the liver from albuminous substances.) Now, glucose is much more readily transformed into this emulsive substance than cane sugar, and consequently substances containing glucose, as honey and fruits, should be administered to patients in preference to ordinary sugar, as, if too much of the latter be administered at once, part gets into the blood unaltered, and is subsequently secreted by the kidneys, aggravating the disease. *Part xxxviii., p. 102.*

Treatment of Diabetes Mellitus.—In adopting a plan of treatment, Dr. Luman was guided by the following considerations:

1. The liver naturally produces sugar in a definite quantity. In diabetes there is an excess of sugar, and we may fairly infer that it comes from the liver. Opium has a decided effect in diminishing the bile-producing or secreting function of the liver, and it is reasonable to suppose that it will reduce the sugar-forming function. Experience has long told

us that no single remedy in diabetes has been so efficacious in diminishing the quantity, etc., of urine passed, as opium. Opium, therefore, should be one ingredient in the treatment.

2. Again, Bernard has shown that the liver makes sugar, no matter what is the nature of the food employed. Dr. Budd has shown that our patients, at least, may be benefited by saccharine food. But my patients did not long for sugar; and they did enjoy their ordinary food: consequently, I neither restricted them to non-saccharine, or non-amylaceous diet, or prescribed unusual quantities of sugar. They were to have the ordinary full diet of the hospital, but more in quantity if they chose, either of bread, meat, or potatoes.

3. Again, it seems to be clear that in diabetes, there was debility, complicating more or less the whole system; that there was danger of death by consumption; that the digestive powers, notwithstanding their apparent energy, must be impaired; at any rate, that opium was liable to disorder the stomach, and that it could be tolerated in larger quantity combined with quinine.

The result of these considerations was the following prescription for a pill:

Opium, one grain; quinine, two grains; to be taken every four hours. Full house diet, with porter daily.

The effect of this was soon apparent. Both patients, laboring men, remained under notice, the one about three months, the other for six weeks. Both left the house of their own accord, as they considered themselves sufficiently cured, and competent to do their ordinary work.

Part xxxviii., p. 116.

Diabetes from Cerebral Disease.—Since the experiments of Claude Bernard have shown that irritating a limited portion of the cerebral substance is followed in animals by the production of sugar in the urine, the attention of physiologists and pathologists has been drawn to the question of how far some of the cases of diabetes met with in practice may be due to cerebral disease. As a slight contribution to the investigation of the subject, M. Lendet relates four cases, in which he believes this relationship is well made out; and from a consideration of the particulars of these, and of observations made by other practitioners, he comes to the following conclusions: 1. Diabetes arises in certain cases from organic changes in the brain. 2. Its commencement may coincide with that of the disease of the brain, or it may take place subsequently. 3. Cerebral disease attended with convulsive movements are those which are especially accompanied by glucosuria. 4. The diabetes may be temporary, manifesting itself during an exacerbation of the cerebral disease, and disappearing with this. 5. The symptoms of glucosuria differ in these cases in none from the ordinary disease developed under the influence of other causes. 6. The diabetes does not derive any aggravation from its antecedent. 7. The treatment should be that of ordinary diabetes.

Part xxxviii., p. 112.

DIAPHRAGM.

Wounds in the Diaphragm.—It is a singular fact, first noticed by Mr. Guthrie, that a wound in the diaphragm never heals, but remains a hole, even if the person should live for years.

A soldier was wounded at Waterloo, by a sword, which penetrated the left side of the chest diagonally, and came through the opposite or right side below, having in its way, as was supposed at the time, injured the diaphragm. The man recovered, and returned to his duty. On the 6th of September, nearly fifteen months afterward, he was attacked, after cleaning his horse, by all the symptoms of a strangulated internal rupture, and died next day. On opening the body, the greater part of the stomach was found to have passed through a hole in the diaphragm, made by the sword, and had become strangulated, like any other part constituting a hernial rupture.

When a man has recovered from a wound which has been supposed to have left a hole in his diaphragm, he must not clean a horse, nor tie his own shoes, nor even bend his back, if he can help it. He must eat sparingly at a time, drink less, and sleep as much as possible in a somewhat raised position. When, however, all possible precaution has been taken in vain, and he is distinctly suffering from the symptoms of an internal strangulated hernia of the part supposed to have been injured, and is likely to die unless relieved, what is to be done? Why, you must make an incision through the wall of his abdomen, just over the suspected spot; introduce your hand through this cut, feel with your fore-finger for the hole in the diaphragm, and withdraw the strangulated part, even if it should be necessary to enlarge the hole in the diaphragm by a blunt-pointed bistoury. If it should have formed attachments, and cannot be withdrawn, the strangulation may be relieved and the patient survive. It is an operation you can practise every time you open a dead body, and it will be a great triumph for surgery to save the life of even one person laboring under an infirmity otherwise at this moment invariably mortal. *Part xxv., p. 200.*

DIARRHŒA.

The continued Use of Opium is liable to produce Diarrhœa, from its effect upon the nervous system, causing relaxation of the sphincter muscle.

Part i., p. 27.

Oil of Ergot of Rye—Suggested in certain stages of diarrhœa. Mr. Wright, in a series of experiments with the oil, says: "I have twice administered oil of ergot in troublesome diarrhœa, and with very marked advantage. The dose was 10 drops every three hours, and both the patients were cured on the following day. It must be understood, however, that this remedy acts simply by subduing an inordinate irritability of the intestines, for it is not physiologically an astringent." *Part ii., p. 40.*

Extract of Monesia.—Suggested in diarrhœa, in the form of pills, in doses of from twelve to thirty-six grains in the day. *Part ii., p. 77.*

Treatment of Diarrhœa in Infants.—In the diarrhœa to which infants are often subject, when unaccompanied by fever or other signs of inflammatory action, M. Trousseau recommends the following enema: nitrate of silver, one to three grains; water, twelve and a half ounces. Or the nitrate of silver may be given in solution, thus: nitrate of silver, one to two-fifths of a grain; water, thirty scruples; simple sirup, thirty scruples. Five or six teaspoonfuls to be taken in the twenty-four hours.

Part III., p. 61.

Burnt Rhubarb in Diarrhœa.—Mr. Hoblyn says:

"I have used it for seven years, and found it more serviceable in the diarrhœa, attendant on the last stage of consumption, than the chalk-mixture and opium, or any other of the usual remedies.

"I have known it used, with the same pleasing effects, for more than twenty years, in incidental diarrhœas. After one or two doses, the pain quickly subside, and the bowels return to their natural state. The dose is from five to ten grains.

"The manner of preparing it is to burn the rhubarb powder in an iron crucible, stirring it until it is blackened; then smother it in a covered jar.

"It loses two-thirds of its weight by the incineration. It is nearly tasteless. In no one case where I have known it given has it failed. I have given it in port wine, milk and water."

Part III., p. 61.

Irish, or Carrageen Moss (Chondrus Crispus).—It has been long known in Ireland, and highly esteemed by the peasantry on the western coast, as a nutritive article of diet, and as a remedy for constipation, diarrhœa, scrofula and diseases of the kidneys. It is usually exhibited in the form of decoction or jelly.

"1. *Decoctum Chondri.*—Macerate half an ounce of carrageen in cold water, during ten minutes; then boil in three pints of water for a quarter of an hour. Strain through linen. Milk may be substituted for water when the decoction is required to be very nutritious. By doubling the quantity of carrageen a mucilage is procured. Sugar, lemon-juice, tincture of orange-peel, or aromatics, as cinnamon or nutmeg, may be employed as flavoring ingredients.

"2. *Gelatina Chondri.*—Prepared by concentrating the decoction, or by employing a greater quantity of carrageen.

The following is M. Beral's formula for preparing what he is pleased to call analeptic or restorative milk: Take milk 24 ounces, Irish moss 4 scruples, sugar half an ounce, canella or cinnamon 1 scruple; macerate the moss in cold water for a few minutes, then shake the water out of it, and boil until the liquid attains the consistence of warm jelly; when cold, it has the consistence of cream. In the Danish Pharmacopœia the proportions given for making "Carraghen-Mos-Gelée" are 2 drachms of the moss to 12 ounces of milk.

Part V., p. 44.

The Unripe Fruit of the Diospyros Virginiana.—Dr. Mettauer, of Virginia, recommends, as a very powerful astringent, the unripe fruit of the persimmon (*Diospyros Virginiana*). Dr. Mettauer was induced to try it as an astringent in a case of infantile cholera. It succeeded admirably, and has since been tried successfully in a variety of cases, where astringent was required. It may be used in the form of infusion, sirup, tincture. The infusion may be made by infusing from one to two ounces

of the fresh immature fruit, slightly crushed, in a common teacupful of boiling water, and of this, from one to three teaspoonfuls may be given to an infant every hour, if necessary; an adult may take from one to three tablespoonfuls every hour or two. The tincture is made by digesting one pound of the green persimmon, recently procured, and a little crushed, in one pint and a half of port or any other wine, exposed daily to the solar heat for 14 days, and then filtered. From two to four teaspoonfuls of this tincture is a dose for an adult; and half, or one teaspoonful for an infant. But it is more applicable to disorders of the adult than to those of the infant, on account of the wine which is used. An acetous tincture may also be made by digesting two pounds of the recent fruit, a little crushed, in two pints of strong, pure apple-vinegar, 14 days exposed to the solar heat. This acetous tincture is chiefly used externally, for gargles and cataplasms. It is valuable in tonsillary affections, and in chronic catarrh. In uterine hemorrhage and in menorrhagia we may find it useful, not only internally, but externally applied. *Part vii., p. 29.*

Puerperal Diarrhœa—Treatment of by Diacetate of Lead.—Dr. Oke relates two cases of inflammation of the mucous membrane of the bowel occurring soon after parturition, in which the most obstinate diarrhœa was continued, in one case to a fatal termination, and in another for some time, notwithstanding the usual routine of practice by calomel and opium, catechu, morphia, leeches to the tender abdomen, fomentations, etc. The diarrhœa was frequent and exhausting, the stools were foul and thickened with slimy mucus, countenance anxious, eyes sunk, pulse 140, and the patient sleepless. The diacetate of lead combined with opium was now commenced.

A grain of the diacetate and a grain of opium were immediately given, and the same dose repeated every two hours whilst the diarrhœa required it; at the same time, the cretaceous mixture was to be given after every liquid stool, as before.

This treatment soon produced the happiest effect. From the moment the diacetate of lead was taken, the diarrhœa gradually subsided; her sleep returned, and in forty-eight hours the pulse fell from 130 to about 96 in the minute. The dose of the diacetate and opium was of course diminished, and the intervals of giving it protracted as the symptoms yielded to its use; in short, under the saturnine treatment she completely recovered. *Part viii., p. 166.*

Obstinate Chronic Diarrhœa.—Oxyde of silver recommended.

Part xi., p. 107.

Acetate of Lead in Discharges from the Bowels.—Dr. Graves states that acetate of lead, when used in large quantities for any considerable time, invariably blackens the evacuations.

You can, however, always distinguish this tinged mucus among the natural discharges, the color being mixed only, and not blended with the latter, as it is with the former. But if the evacuation be of a dark color, such as is seen in cases where blood has been effused into the intestinal tube, and changed by the acid juices of the canal into a dark coffee-ground or nearly inky appearance, it becomes very difficult to distinguish this from the tinge given by acetate of lead, unless you are accustomed to it.

"I may observe here that a considerable degree of error has existed

with respect to a peculiar greenish discharge from the bowels, composed of morbid matter secreted by the diseased mucous membrane.

"All practitioners before me, and among the rest Dr. Cheyne, attributed this to an effusion of morbid bile. This error, I regret to say, is still prevalent: you will hear medical men, when they meet with this discharge in children, say that it is the result of a morbid secretion of bile, and that the child requires calomel purgatives to carry it off. It is true that morbid bile may irritate the intestinal mucous membrane so as to cause an effusion of this green secretion, but still this is not bile. Bile secreted in large quantities, is never green; it may present a lightness of yellow, but it is never green. This secretion comes from the surface of the small intestines, and is generally the result of irritation. Whether a consequence of inflammation in other mucous tissues—in the eye, for instance, or in the urethra? Do we not see the mucus assume a yellowish, and even a greenish color? The discharge from an irritated mucous membrane may assume all shades from a pale white to a yellow or green. I dwell on this chiefly to point out the gross error of looking upon these discharges from the irritated surface of the intestines in children as consisting of morbid bile. It is not depraved bile, neither is it to be removed by calomel or strong mercurial purgatives. It is by changing the diet, keeping the child warmly clothed, and prescribing small doses of opium, or creta with Dover's powder, that this diseased secretion is to be checked. What does calomel do? It frequently produces exactly the same state in the digestive tube. You will have in a patient taking calomel a green secretion from the intestines of a deep green color, resembling chopped spinach, accompanied with pain in the bowels and other symptoms of irritation, showing the source from whence the discharge proceeds.

"In the case of a young woman, now convalescent, nature attempted the relief of the abdominal congestion, not by an effusion of blood, but by means of a copious watery diarrhœa. She passed enormous quantities of this secretion, which appeared to consist of aqueous fluid, mixed with coagulated and shreddy mucus, so as to resemble decayed vegetable matter, which had been chopped small and left to macerate in water, and it became intimately mixed up with it.

"We attempted, after the lapse of a few days, to check it by the use of acetate of lead and opium, with wine, and were so fortunate as to succeed completely. We gave her draughts, composed of acetate of lead and tincture of opium in camphor mixture—two grains of the acetate of lead with five drops of laudanum, in each draught. Of these she took five the first day, four the second, and three the third. On the evening of the third day the secretion from the bowels was so much arrested, that it was deemed unnecessary to continue them any longer. Their use has not been followed by any unfavorable result. The patient has been improving rapidly ever since, and now is able to sit up.

"Dr. Bardsley recommends the trial of acetate of lead in that form of diarrhœa which comes on toward the termination of fever, and generally ends in ulceration of the Peyerian glands.

"I have experienced the best effects from its employment, not only in the diarrhœa which accompanies ulceration of the mucous glands, but also in that species of diarrhœa which occurs at an earlier period of fever, and by means of which nature attempts the relief of intestinal congestion. Of its great value in the treatment of cholera I have already spoken.

I do not know of any remedy by which inordinate fluxes from the whatever may be their nature, are so efficiently treated. The marks will apply to super-secretion from the lungs. have been in the habit of prescribing it in combination with landa- d wine vinegar." *Part xii., p. 88.*

are of the Green Evacuations of Children.—[At the conclusion of a in the green alvine evacuations of children, Dr. Bird thus sums up ions on the subject:]

gard the presence of green stools as indicative not of a copious m of bile, but of a congested state of the portal system, in which a exuded very slowly, and in small quantities, so as to allow of the eing affected by the gases and secretions present in the intestines; of things capable of readily ending in melæna, in which the effu- blood is so copious and sudden as not to give time for the occur- of the changes alluded to. There is, moreover, a peculiarity in the dejections in children and others whose portal circulation is con- which, so far as I know, is quite distinct from any property pro- by mere bile under similar circumstances—I allude to the effect of re to the oxygenating influence of the air upon them. When first the "chopped spinach" stools are in the majority of cases of a orange color, and they assume their characteristic grass-green hue ter exposure to air. The time required for this change varies re- ply. I have seen an orange-colored stool become green in a few is; and in the same patient, only a day or two afterward, many may have been required to effect the same change.

Part xii., p. 90.

tment of Bowel Complaints.—A simple and very effectual treat- of the less severe bowel complaints, so apt to prevail in October, is lowing:

ulph. magnesiae, ℥ss.; aquæ menthæ, ℥vj. Solve. A wineglassful to d at intervals of an hour, till the bowels have been distinctly acted the medicine, and then a pill containing one grain of opium is to be

n where the pain is considerable, and the case threatens to be se- his simple plan often succeeds.

Part x., p. 138.

accumulation of Feculent Matter in the Colon—A Source of Diarrhœa.

accumulation of hard feculent matter in the bowels, more par- ly of the colon and cæcum, is often very embarrassing to the young ioner, as it frequently causes symptoms resembling peri-enteritis, eatment is of no avail in alleviating pain and tenderness, until the ous matter is got rid of; but there may be just the opposite symp- resent, viz., those of diarrhœa—hence the necessity for careful ex- sion of the abdomen, and also of the evacuations.]

accumulation of feculent matters in some parts of the intestinal a apt to be mistaken for schirrous and other tumors of the viscera. saw a man, says our author, whose case had been declared by an enced physician to be one of schirrous swelling in the abdomen—in nence of a hard immovable lump that was situated at the side of ibilicus—but who, fortunately, was speedily relieved of all his in- dence by the use of warm water enemata and castor oil. He sub-

sequently died of another disease; and, on dissection, it was found that the ascending colon was contracted at one point, and that the gut, near the cæcum, was much distended, and quite filled with hardened fecal masses. In this case the swelling was not much bigger than a man's fist; but in another it was as large as a child's head, and the feces were as hard as cannon balls. It has been frequently observed, that the feces are apt to accumulate in the cæcum; and it is well for the medical practitioner to be aware of the fact that, in such cases, there may be no constipation; so that even a diarrhœa may be present. A passage is then formed either through the substance of the hardened feces, or between them and the walls of the gut; and along this passage the thinner matters may descend while the thicker and more consistent are retained. A case, therefore, seeming diarrhœa may actually be one of inveterate lodgment.

Part xiii., p. 16.

Occurring in Infants.—Dr. Thomson believes there are but few cases of diarrhœa occurring in infants under a year old but what may be cured by castor oil, even when ulceration has taken place; as shown by a pre-dominance of blood in the evacuations—tenesmus, abdomen tumid and painful, mouth dry and aphthous, etc. He gives the castor oil with yolk of egg, and, according to circumstances, does or does not add a grain of opiate. He recommends, however, as accessory, the warm bath, friction to the abdomen, and occasionally a mild mercurial dose. He observes,

No mercurial so quickly changes the character of the evacuation as the emulsion, which only requires to be steadily persevered in. The following is the form in which I generally prescribe it for infants: For an infant from two to four months old, ℞ ol. ricini, ʒj-3jss.; vitelli ovi semis; aneth. fœniculi, aa. ʒj. Ft. emuls. Sumat. coch. parv. bis die. To the above, from two to six drops of laudanum may be added, or not; but, of course, this as well as the size and frequency of the dose, must vary with the case. The mixture is generally taken readily, and even liked. The same preparation is equally useful in that form of intestinal affection which is met with in children of from one to nine years of age, with tenesmus of the evacuations to become watery, brown, black, and very offensive.

Part xiii., p. 16.

Bismuth in Diarrhœa.—M. Rayer speaks in praise of the trisminite of bismuth when used in the diarrhœa to which phthisical patients are liable, and in that which occurs during the progress of typhus. The remedy has for many years been employed, and often with great advantage, in the simple form of diarrhœa which affects young children.

Part xv., p. 111.

Treatment of Diarrhœa.—The first and simplest kind of Diarrhœa, named usually *crapulosa*, is that which results merely from an inordinate meal.

Here the diarrhœa is not to be considered the disease, but rather the cause or causes producing it, of which it is at once the effect and the remedy. Diarrhœa of this species and origin is to be permitted, if not even encouraged; certainly not to be checked, unless it ends in tenesmus with stools purely mucous, and devoid both of feculent matter and undigested aliment. Then, and then only, we must step in with chalk mixture or with opiate pills, powders, draughts, or suppositories.

The second and next most usual form of diarrhœa is what is called bilious.

Dr. Prout alleges, that in some diseases the biliary secretion is strongly acid. In other cases it is equally acid; and not rarely this chemical change in the secretion is accompanied with a notable augmentation of its quantity, so that two causes, namely, morbid quality and quantity, coöperate in producing preternatural peristalsis of the bowels and bilious discharges, accompanied with what may be called *ardor fecium*.

Diarrhœa of this kind is also scarcely, if at all, to be interfered with. Astringents would be madness; purgatives are unnecessary. Diluents, however, to protect the mucous membrane and dilute the acrid bile; anodynes, such as tincture of hyoscyamus, to relieve spasm or griping; warm fomentations and opiate epithems to the abdomen: these, and some other like means, will ease the sufferer, and ward off fever. If, however, there is much tumefaction and growing tenderness in the hepatic region, no time must be lost; but cupping, leeches, even blisters and phlebotomy, must, singly or successively, be employed. If febrile excitement succeeds the diarrhœa, we must give liquor ammoniæ acetatis, ipecacuan wine, or even the potassio-tartrate of antimony.

Pancreatic diarrhœa naturally follows bilious. In the few cases of it which have been noted, and were reported, and verified by a post-mortem examination, there was deep-seated pain, during life, behind the pylorus, with mucous vomitings and "spumous stools." The treatment is similar with that of bilious diarrhœa.

What may be called catarrhal diarrhœa is the next form; or we may name it gastro-enteric influenza. It is, in short, an insidious kind of sub-inflammation of the small intestines, attended with no inconsiderable debility, fever, and, for some time, at least, with a pretty copious muco-serous discharge. In this form, we must have recourse to camphor-mixture, musk-mixture, liquor ammoniæ acetatis, liquor ammoniæ sesquicarbonatis, with vinum ipecacuanhæ, ammoniacum mixture, etc. To each of these we may add, infusion or tincture of hop, or the wine of opium, or half of a grain or quarter of a grain doses of the hydrochlorate of morphia. Warm diluents, such as tea, are also to be freely used; and in the aged or feeble, wine and tonics must be prescribed so soon as the pulse and the dryness and heat of skin subside.

Diarrhœa of a purulent character, and accompanied or caused by ulceration of the glands and follicles of the small intestines, must be treated as dysentery. In France and Germany, ipecacuanha is much used and much praised in such circumstances.

Helvetius, in giving a formula for an ipecacuanha decoction, very justly directs, that on the first day it should be given in such doses as to cause vomiting. Many cases, both of diarrhœa and dysentery, are caused by interruption (from chill, etc.) of the transpiratory function of the skin. Almost all cases, whether of this origin or not, are accompanied with a remiss action and dry and heated state of that integument; and all of them are greatly relieved by that dry and heated state being removed, by the establishment of free emesis.

When diarrhœa is from the first of a purely passive character (without febrile excitement, quickened pulse, dry skin, thirst, etc.), or when it becomes so (having reached its chronic stage), we may, after a little time, and if it does not tend spontaneously to disappear, check it by astringents.

gents. For this purpose, tannin, rhatany, catechu, kino, alum, tormentil, pomegranate, may severally be employed. If there are acid eructations, lime-water and the chalk-mixture may be used, separately or combined with any of the above. If there is a passive diarrhœa, with abdominal pain (depending on tenesmus not only in the rectum, but along the intestines), but without acceleration of pulse, etc., then a dose of morphia may be prudently hazarded, by which the disease will sometimes be at once removed.

Part xvi., p. 131

Use of Nitrate of Silver.—Hirsch, of Königsburg, found the nitrate of silver to succeed in obstinate cases of diarrhœa on the failure of ordinary remedies. It proved specially useful in the diarrhœa of newly weaned infants. In "the advanced stage of such cases, when emaciation was extreme, the dejections being frequent, fetid, and consisting of variously-colored, sometimes greenish, or bloody mucus, and wanting altogether the fecal character. When aphthous ulceration pervaded the mouth, and when prostration was extreme, the action of the nitrate was brilliant." He gave it to children thus: *R* Argent. nitrat. crystall. gr. i; aquæ destill. ℥ij.; gum. mimosæ, ℥ij.; Sach. albi, ℥ij. *M. Ft. mist.* A teaspoonful of this mixture was given every two hours, and an enema containing a quarter grain of the salt with mucilage and a little opium was administered. The good effects of this treatment were occasionally visible in a few hours, sometimes not until the second day. He renounces it a specific in the diarrhœa of infants. He found it almost equally efficacious in severe forms of diarrhœa and dysentery occurring in adults. He administered it to the latter in pills in doses varying from one-twelfth to one-twentieth of a grain every two hours. For this purpose he recommends liquorice powder as preferable to the vegetable extracts which effect its decomposition. He also gave enemata, containing half a grain, or a grain, with mucilage and opium.

Part xvi., p. 131

Diarrhœa.—Dr. Duncan refers particularly to that form of complaint which is attended with tenesmus and frequent inclination to go to stool, rather than great discharges. The disease being protracted, loss of health and spirits, anxiety, sleeplessness, and hectic supervene. Dr. Duncan observes:

The whole of this train of symptoms may depend upon some irritation within the rectum, a small ulcer or bleeding pile, whose presence is scarcely recognized by the patient himself, and of which, perhaps, he is never even questioned by his medical attendant.

In every case of protracted diarrhœa, in which a careful examination of a patient's state fails to detect an adequate cause for the disease elsewhere, the attention of the practitioner should be directed to the rectum with a view to ascertain its real state, and remove any local irritation that may exist in it.

[There is nothing of more consequence when we treat a case of diarrhœa than examination of the stools: and one of the most important points to be ascertained by the examination, is the presence or absence of bile in the dejections. If the evacuations are bilious, opium may be given with safety, and will indeed form an essential part of the treatment. Dr. Duncan thinks that opium acts in these cases by diminishing the secretions which flow into the canal, rather than by lessening the peristaltic action

of the bowels itself. And it is on account of this property, that of diminishing the secretions, that opium will be injurious if given when there is a deficiency of bile in the stools. Dr. Duncan says:]

This leads me to notice the propriety of using strychnine in those cases which present the features I have just alluded to—of absence or deficiency of bile in the evacuations. Of course I do not allude to this remedy as appropriate to the acute period of the attack. Most, if not all, of these cases commence as ordinary dysentery, and require to be treated as such, by bleeding, leeching, mercurial preparations, etc.; but after the febrile stage has passed away, you will find the diarrhœa remaining, with whitish stools, general relaxation, prostration of strength, etc.; and here you will find strychnine an admirable remedy. In whatever point of view you regard it, strychnine is the direct antagonist to opium. If opium numbs the sensibility, strychnine exalts it; if opium produces sleep, strychnine excites to wakefulness; if opium impairs muscular contractility, strychnine induces spasms; if opium arrests secretion, strychnine promotes it. But it is especially from its effect in promoting secretion that it deserves our attention at present. I do not know that this property has been generally ascribed to it, but I can state that in two cases of chronic diarrhœa of the kind described that I had under my care in this hospital last summer, and which recovered—the change in the character of the evacuations was one of the earliest effects produced. From being white they became feculent, consistent, and full of bile; and whenever in such a case this change occurs, depend upon it, you have discovered the true method of cure. Until feculent discharges are procured, the morbid state cannot be considered at an end, even though the patient's sufferings are mitigated, and the unnatural frequency of calls to stool removed.

Part xviii., p. 117.

Diarrhœa treated by Muriate of Barytes.—Dr. Walsh gives the case of a man, 22 years old, who had evacuations every ten or fifteen minutes, attended with great pain, thirst, dry tongue, and quick pulse.

History.—Said he was seized with fever in July, 1847. He relapsed twice, and after last relapse he was attacked with bowel complaint, for which he was under every variety of treatment in hospital without benefit, and was discharged. I ordered wine and arrow-root, with the following medicine: muriate barytes, one grain; muriate morphia, three grains, made into twelve pills, one to be taken three times each day.

At the expiration of ten days a cure was effected without recourse to any other treatment.

Part xviii., p. 119.

Persesqui-Nitrate of Iron in Diarrhœa.—[Mr. Kerr states that the persesqui-nitrate of iron is a remedy of great power in most cases of chronic diarrhœa, and in this way likely to be useful as a means of preventing cholera. He says:]

After an experience of eighteen years, I can confidently recommend the persesqui-nitrate of iron as capable of curing most cases of chronic diarrhœa. The instances which do not yield to it are those where there is reason to believe ulceration of the mucous membrane exists. It is therefore generally inapplicable in chronic dysentery, or the diarrhœa of phthisis, which, instead of checking, it aggravates.

Dr. Graves states that he has lately used the persesqui-nitrate of iron with very considerable success. He proceeds to say, that "you will be

consulted by females of a very delicate and weakly habit, who frequently exhibit symptoms of nervous derangement, such as palpitations, sleeplessness, and headache, who are easily excited or alarmed, have a tendency to emaciation and paleness, and have little or no appetite. Combined with these general symptoms, you find that they have been laboring with diarrhœa for weeks, and even months, and that this, with other causes of debility, has rendered their condition extremely uncomfortable. You are also be informed by the patient that she has tried many remedies without benefit, and that she is extremely anxious to have something done to her relief; and hence it is a matter of importance to be acquainted with a remedy which may be likely to prove serviceable. This form of diarrhœa is of an unmanageable character, and very seldom amenable to the ordinary modes of treatment. The common astringent remedies totally fail; chalk mixture, kino, rhatany root, and catechu are useless, and in such cases it has been observed that opium is generally injurious. If you prescribe opium, it certainly checks the disease for a time; but this temporary relief is accompanied by debility, malaise, restlessness, and many other symptoms, and the diarrhœa soon returns and is as bad as ever. The medicine which I have found most effectual in such cases is the persesquinitrate of iron. With it I have succeeded in curing many cases which have been exceedingly obstinate, and of very considerable duration, the disease having, in one instance, resisted all the efforts of medical skill for seven months, and in the other for two years. Seven or eight drops of the liq. ferri persesqui-nitratis, increased gradually to twelve or fifteen in the course of a day, was the quantity prescribed in both cases. In the course of four days a slight diminution of the diarrhœa was perceived, in a fortnight the patients felt much better, and in a month or five weeks it had disappeared altogether. This took place without being followed by any bad effects; there was no swelling in the stomach, no tympanites, no tormina, no restlessness, or nervous derangement: the patients recovered their health and strength, and the cure was at once safe and permanent."

Epilepsy and hysteria often exist together with a long-continued relaxed state of the bowels, and do not yield till a remedy is obtained for the diarrhœa. I have seen these and other diseases cured chiefly in consequence of the persesqui-nitrate of iron checking the accompanying diarrhœa.

Part xviii, p. 116

Diarrhœa of Children.—[When diarrhœa comes on in connection with teething, scarification of the gums is not necessarily to be practised, or the contrary, it should only be performed when some spot upon the gum is very tense and swollen. To relieve febrile excitement, the use of the tepid bath once or twice a day is serviceable. As to medicines, Dr. West tells us:]

I usually employ in these cases small doses of ipecacuanha, in combination with an alkali, and think that I have found great benefit from the plan. Three or four drops of liquor potassæ, and the same quantity of vinum ipecacuanhæ, mixed with mucilage, and given in a little milk about every four hours, is the dose for an infant a twelvemonth old. At the same time a powder of one grain of Dover's powder, and one of the mercury and chalk, may be given every night, after the child is taken out of the warm bath, and will often be found to procure for the little patient, previously restless and fretful, some hours of quiet repose. If the child should appear

much exhausted, a slight stimulant, such as four or five drops of the spirit of nitrous ether, may be advantageously combined with each dose of the mixture; and in all cases of simple diarrhœa, it behooves us to watch most carefully against the powers becoming too much depressed, either by the profuseness of the purging or by its continuance.

Supposing in any case that a considerable degree of looseness of the bowels were to continue after the lapse of two or three days, astringents must be resorted to; and I know of none better than the extract of logwood, in combination with tincture of catechu. Five grains of the former and ten minims of the latter, three times a day, in some sweetened aromatic water, is a suitable dose for an infant a year old. The logwood, moreover, is something besides a mere astringent; it is a very valuable tonic in all cases where gastro-intestinal disorder has existed; and it is one which children take readily. It is, however, not very popular in the nursery, because it imparts to the evacuations a deep pink color, which leaves an indelible stain upon the napkins: a circumstance which it is as well to mention when you prescribe the medicine. The mercury and chalk and Dover's powder may be still continued at bed-time, if the evacuations, though less frequent, be still slimy and unhealthy. If either the evacuations or the infant's breath have a sour smell, three grains of the sesqui-carbonate of soda may be added to each dose of the mixture; or, if the child be not wholly fed at the breast, a drachm of prepared chalk may be stirred up with each pint of milk given to it. You will observe that all the remedies mentioned occupy but a very small compass: a point the importance of which is never to be forgotten in prescribing for children.

But there are cases which wear a much more serious aspect. Even in true *inflammatory diarrhœa* however, depletion is but seldom needed, for either the abdominal tenderness is inconsiderable, or, if the attack set in with great severity, it will be generally found to have occasioned so much depression of the powers of the system as to contra-indicate the abstraction of blood. Still, in cases of recent date, when the abdominal tenderness is considerable, and when it is associated with much heat of the skin and febrile disturbance, a few leeches may be applied in either iliac region. The child should be carefully watched for some hours afterward, in order to prevent any excessive loss of blood. In the majority of instances the pain and tenderness of the abdomen are much relieved by the application of a large hot bran poultice; the frequent renewal of which often affords great comfort to the child.

If the irritability of the stomach be not so great as to prevent its administration, no medicine is of such general application, or of such essential service in these cases as a mixture containing a small quantity of castor oil diffused in mucilage, with the addition of a few drops of tincture of opium. I was led to use this medicine in the inflammatory diarrhœa of children, from observing the great benefit which followed its employment by Dr. Baly in the treatment of dysentery among the prisoners in Millbank Penitentiary. The following is the form in which I should prescribe it for an infant a year old, and in which it is taken by most children very readily: R Ol. ricini, ʒj.; pulv. acaciæ ʒj.; syrupi simpl. ʒj.; trœ. opii, miv.; aquæ flor. aurant. ʒvij. M. ft. mist. A teaspoonful to be given every four hours.

Although the medicine may relieve all the symptoms considerably, and although the general state of the child may be much improved, yet it

sometimes happens that a considerable degree both of tenesmus and purging continue. These symptoms will now be more effectually relieved by an opiate enema than by any other means. Four drops of laudanum will form an enema of sufficient strength for an infant a year old; and should be given suspended in half an ounce of mucilage, since a more bulky injection is almost sure to be immediately expelled. Supposing the symptoms not to yield to these means, or that the case presents itself at first a great degree of severity, small doses of hyd. c. creta and Dover's powder may be given every four hours, in addition to the castor oil mixture, which, however, should now be given without the laudanum.

Part xviii, p. 184.

Nux Vomica in Diarrhœa from Exhaustion.—Dr. Nevins mentions the benefit derived from the employment of nux vomica in the treatment of the diarrhœa from exhaustion, chiefly observed in pauper patients, and especially children. In these cases he had repeatedly found no benefit from astringents and ordinary tonics, but the patients had rapidly improved under the use of the following prescription: Alcoholic extract of nux vomica (not officinal, but prepared by most wholesale druggists), gr. ss.; rhubarb, gr. ss.; saccharated carbonate of iron, gr. j.; blue pill, gr. ss.; opium, gr. ½; made into a pill, and taken three times daily. In many cases he omitted the opium altogether.

He attributed the benefit to the influence of the nux vomica, which by stimulating the nervous energy of the bowels, enabled the lacteals to absorb the nutriment from the food, and the large intestines to retain the feces; whilst, at the same time, the iron acted as a permanent tonic; and the very small doses of rhubarb and blue pill improved the character of the secretions, without acting as an aperient. Improvement was generally perceptible in a few days, and he seldom had occasion to continue the prescription more than a fortnight.

Part xix, p. 184.

Proto-sulphate of Iron.—Recommended in obstinate diarrhœa.

Part xix, p. 184.

Diarrhœa.—In cases where there is much pain and mucous discharge dependent upon a relaxed condition of the mucous membrane, give in or ten grains of the "bisulphate of iron and alumina" every two or three hours, dissolved in any aromatic water.

Part xix, p. 184.

Diarrhœa—Sub-nitrate of Bismuth.—Recommended by Mr. Mounier. It is especially in the diarrhœa of infants, resulting from imperfect action, that he has found it so very useful, large doses curing such in a few days. So, too, after weaning, and the injudicious diet so often adopted, the bismuth, in doses of three teaspoonfuls a day, soon removes all symptoms of disordered digestion, especially the serious diarrhœa so often produced in these cases. Simple diarrhœa is of much rarer occurrence in the adult; still, examples are met with in which we cannot attribute it either phlegmasia or ulceration of the intestines, as in the granular disease of the kidneys, in chlorotic women, in women become anæmic from cancerous degeneration of the uterus, and in some cases of chronic disease of the heart, or in commencing phthisis. Those cases in which diarrhœa is serious, and results from an atonic state of the gastrointestinal membranes, best yield to this medicine. It should be gradually increasing quantities from two drachms to twelve or

Administration and Action.—It should be given in powder, and best so with the first spoonful of broth or gruel. It excites no disgust, especially if placed between two bits of bread, soaked in broth. Children take it readily with milk or ptisans. The author has never given less than from two to three drachms daily, nor more than twenty, and he has never observed the slightest inconvenience from these large doses; and it is his custom to give it to the children in his hospital by spoonfuls or table-spoonfuls, without observing more exactitude, so innocuous is it. So imperfectly is this fact known that the chemists hesitate in preparing prescriptions in which these large doses are ordered.

Part xx., p. 92.

Choleroïd—Use of Oil of Turpentine.—Put the patient into a warm bed; apply over the abdomen a large bran poultice, or a patent epithem moistened with infusion of chamomile, and occasionally sprinkled with laudanum; and put hot bottles to the feet. Then give about mxv. of rectified oil of turpentine, with a little laudanum or tincture of hyoscyamus. One dose sometimes suffices; but if it does not, repeat the medicine. The best way to give turpentine is to put about a drachm of tincture of hop into a wineglass, drop the turpentine into it, and then, *just as the dose is to be taken*, add half an ounce of cold spring water.

Part xxi., p. 157.

Choleroïd Diarrhœa.—In *choleroïd diarrhœa*, with rice-like stools and collapse, let the child be held in a mustard-bath, till the hands of the person holding it smart much, then wrap it in woollen cloths, and give a little ether and mint-water. When reaction sets in, give ipecacuanha in emetic doses, and Rochelle salts. If typhoid symptoms come on, and the diarrhœa persists, give enemata of nitrate of silver. Laudanum and astringents are of little or no use in this form of diarrhœa.

Part xxi., p. 158.

Diarrhœa—Chronic.—When it resists the usual remedies, give tannic acid, two or three grains twice a day, in the form of a pill.

Part xxi., p. 326.

Creasote in the Treatment of Diarrhœa.—In most cases this alone has been given, and chalk mixtures, etc., have been entirely discarded. The form in which it has been administered to adults has been as follows: $\text{R Creasoti, m\ss. ad m\ss.; spir. animon. arom. m\ss. ad 3j.; aque 3j. ad 3iss.}$; where pain has been severe, tinct. camp. co. has been added. Mr. Spinks prescribed chloric ether; but the writer having had reason to think it produced headache, has omitted that article without detriment.

The writer has found creasote more efficient than any other drug in stopping pain, vomiting, and purging, as combined in diarrhœa.

Part xxiii., p. 124.

Autumnal Diarrhœa.—Give the citrate of iron and quinine, especially when the affection assumes an intermittent type.

Part xxiv., p. 110.

Treatment of Diarrhœa and Dysentery by Sulphuric Acid.—Mr. Shepard says:

The character of the epidemic which has been so prevalent in my neighborhood, during the last six weeks, has been as follows: Great prostration of the vital powers; severe griping and pinching pains in the bowels (not invariable), greatly aggravated by drinking anything hot,

greatly relieved by cold; tongue generally dry and furred, occasionally moist and red; distressing flatulence, the bowels being at times very much distended, burning thirst, and sensation of heat down the whole course of the alimentary canal, with (in some cases) incessant vomiting.

Case.—J. Q., two years of age. Incessant pain in the bowels, and vomiting for the last eight hours; skin cold and clammy; pulse extremely feeble, and rapid; intense anxiety of countenance. In fact, the child appeared moribund, and the parents quite thought the case hopeless. They had given a little brandy, which had been immediately rejected by the stomach. I sent for a tumbler of cold water, which the child caught sight of, and requested to have. The little thing drank off the whole, and lay back on the pillow quite exhausted. Ordered the following mixture: R Acid. sulph. dil. dr. j.; tr. cardamom. co., dr. j.; sacchar. alb. dr. ij. aq. menth. pip., ad oz. ij. M. A teaspoonful every hour. I called at two o'clock P.M., when the child was sitting up in its mother's arms. The purging had quite ceased.

Case.—Mrs. B., 70 years of age. Great uneasiness in the bowels, hardly amounting to serious pain; constant vomiting and purging; tongue dry and furred; fetid breath; pulse 100; abdomen tympanitic; great thirst. Ordered iced water *ad libitum*; and the following mixture and pill: R Sacchari albi, dr. iv.; acid. sulph. dil., dr. iss; tr. cardamom. co. dr. iij.; liq. morph. bineconat., m. xl.; mist. camphora, oz. ss. M. A fourth part every four hours. R Hydr. cum creta, gr. iij.; piceac. co., gr. ij. To be taken as a pill immediately. On the following day I found that my patient had obtained relief in the course of two hours.

Part XXVI., p. 84

Diarrhœa.—Give matico in doses of from eighteen grains to 5j per diem.

Part XXVI., p. 85

Remarks on the Treatment of Diarrhœa by Sulphuric Acid.—In the hands of many this remedy has failed in diarrhœa. This is mainly owing to a want of discrimination in the choice of cases suitable for its use.

When diarrhœa prevails extensively we may clearly recognize two forms of this affection, somewhat similar in their symptoms, but differing materially in their origin and requiring distinct methods of treatment.

The one, simple diarrhœa, caused mainly by errors of diet, or some temporary derangement of the biliary system, and the symptoms of which are copious and frequent feculent evacuation, slight nausea, griping, and tenesmus; the disease frequently being cured spontaneously, in the course of a day or two, with no other ill effects than temporary debility, and seldom requiring any other treatment than mild oleaginous purgatives, and sometimes a few doses of chalk mixture and opium.

The other form is the one most deserving of attention, as well from the severity of its symptoms as the tendency which it has to lapse into low fever. The following is the usual history of the case: The patient was either quite well a few hours before, or perhaps had suffered from slight relaxation of the bowels for a day or two, when, without having committed any errors or irregularities in living, he was seized with profuse diarrhœa, the evacuations consisting at first of the contents of the bowels in a very fluid state, ultimately becoming like dirty water, and containing little if any solid matter; nausea and vomiting of large quantities of fluid; severe spasmodic pain in the stomach and bowels; cramps in the entire

mities, often very violent; the pulse small and frequent; tongue moist, and either clean or only slightly covered with a brownish fur; the surface cold and clammy; countenance anxious; these symptoms being followed by a continued fever, varying in duration from a few days to a week or two.

The symptoms most worthy of note are the peculiarly fluid evacuations, the severe cramps in the extremities, and, above all, the consecutive fever; presenting various degrees of severity, from apparently simple diarrhœa, to an extent almost bordering on that of Asiatic cholera.

It is in diarrhœa having this character that sulphuric acid is a most valuable remedy, frequently in a few hours restoring the patient from a condition of extreme distress to one of comparative comfort, administered in doses of half a drachm, with a drachm of compound tincture of cardamoms, in an ounce of water, at intervals of from one to three hours, according to the urgency of the case.

When a few doses fail to relieve the patient, it is better not to persevere; for a long continuance of the acid, in large doses, is of itself sufficient to set up a troublesome and unmanageable irritation of the mucous membranes of the stomach and bowels. If it is to act satisfactorily will be shown by the result of a few doses.

Part xxvii., p. 85.

Treatment of Diarrhœa by Chloric Ether.—[We often find that many cases of diarrhœa resist all ordinary treatment, opium amongst the rest. In 1846, '7, and '8, an epidemic prevailed at Bradford, Yorkshire, which was attended by a diarrhœa of an intractable nature.]

This diarrhœa was combined in many cases with vomiting and spasmodic pain of a very distressing character. We had very little difficulty in treating those cases in which pain was absent, but we found a certain proportion in which the diarrhœa obstinately continued despite the use of a multitude of remedies; and the pains, though temporarily relieved by the use of opium, returned directly the narcotism passed off; the opium suspended, but did not remove, the spasms. At length we adopted the following formula:

R *Ætheris chlorici*, ʒij.; *speciei. pro conf. arom.* ʒss.; *misturæ cretæ compositæ* ad ʒvj. M. Fiat *mistura*.

The fourth part was directed to be taken directly by an adult, and repeated every half hour, or at still longer intervals, according to the severity of the attack, and its effect upon the patient. Occasionally, opium, either in the solid form or the tincture, added to the mixture, was given; but this was seldom necessary, and probably every case would have recovered without its use. The effect of the ether in every case was marvellous. The spasms and pains were relieved, as if by a charm; the diarrhœa ceased; warmth returned to the extremities; the pulse, before perhaps flagging, increased in force and volume. The relapses were infrequent, and were generally checked at once by a single dose. It was equally effective in arresting the promonitory diarrhœa, cramps, etc., of cholera.

Part xxx., p. 86.

Sulphate of Bebeerine in Diarrhœa.—Mr. Mathews, of Manchester, recommends the use of sulphate of bebeerine as a remedy for severe diarrhœa, in fact, he states that he has found it "a very near approach to a specific." He generally first gives a pill, consisting of two grains of calomel and half a grain of opium, and if there is great pain, or the vomiting

is urgent, orders a sinapism to the acrobiculus cordis, and then follows with the following mixture: Sulphate of bebeerine, twelve grains; gallic acid, and rectified ether, each, twelve minims; cinnamon six ounces. Mix. One ounce to be taken every four hours.

Part xxi., p. 6.

Use of Carbazotate of Ammonia.—In long continued cases when usual remedies were given without effect, the carbazotate of ammonia given in grain doses, with the same quantity of gallic acid, and one grain of opium, three times a day, continued regularly for a week or fortnight, has been found to effect a complete cure.

Part xxi., p. 6.

Borax Injections in the Diarrhœa of Children.—It may be symptomatic of organic disease of the mucous membrane, or it may be symptomatic affection catarrhal in its nature. If this last, the action of borax lavements on the mucous membrane is regarded as analogous to the effects of borax on the mucous membrane of the mouth. The following is the formula for this lavement: Borax ʒiv. to 3vj.; sugar and water ʒi.

* * * * *

Give one or two ounces of the decoction of tormentilla every three hours.

Part xxii., p. 6.

Chronic.—Use of Tannin.—One scruple of tannin dissolved in six ounces of water, with the addition of one ounce of gum arabic, forms a good mixture for chronic diarrhœa and the third stage of dysentery.

Part xxii., p. 6.

Diarrhœa of Phthisis.—M. Aran recommends the employment of wine in enemata, especially in the treatment of chlorosis, dyspepsia, pulmonary phthisis, and during convalescence from severe disease.

Part xxii., p. 6.

Diarrhœa.—The best diet, as a general rule, is milk and lime-water, which is very readily absorbed, and sufficiently nourishing. When there are lumps of feculent matter in the stools, and a smell like that of decomposed excrement, give purgatives. When this is not the case, purgatives will not be found to be beneficial. When the products of acute inflammation are found mixed in the stools, such as white and opaque mucus, flakes of fibrin, epithelium, etc., leeches, fomentations, warm hip-baths, and poultices to the abdomen are the appropriate treatment, together with the administration of calomel, ipecacuanha, and carbonate of soda. In children it often arises from the irritation of teething. The gums must be treated with Opium in the form of Dover's powder (half a grain every three hours) is here of striking utility. When blood is passed from the bowels, and a fever is present, the most powerful means of checking it are turpentine and acetate of lead. When the diarrhœa is from ulceration of the ilia, either the milk and lime-water diet, giving chalk and opium; or, if these fail, sulphate of copper. When there is a simple diarrhœa, without fever or pain, or any fibrin or blood in the stools, astringents, such as logwood, bark, kino and tannin, are of use. When bulky and copious, opium must not be given, but of tenesmus.

Use of Dover's Powder.—Dover's powder, in

consul of gruel, and repeated every loose stool, is one of the simplest and most effectual means of treating cases of ordinary diarrhoea.

Part xxxvi., p. 91.

DIGITALIS.

Use of.—One of the most valuable medicines which we possess in the treatment of diseases of the heart is digitalis. It is rather surprising to find even on the value of this medicine there should be so much difference of opinion among practical men. This will arise, we suspect, from the different preparations, the powder, tincture, and infusion, being used indiscriminately, without reference to the sedative powers of the one, and the diuretic powers of the other.

Munk shows from a series of cases that this medicine has two very different effects on the system, one as a sedative and the other as a diuretic, and that the tincture acts most powerfully on the heart as a sedative, the infusion acts chiefly on the kidneys as a diuretic. He does not consider the powder highly either as a sedative or diuretic when given alone, more uncertain and unmanageable in its effects; but when combined with pills and mercury its influence is more certain on the kidneys, but it is to be depended upon as a sedative. The administration of digitalis in diseases of the heart requires more caution than is generally acknowledged, especially when the aortic orifice is implicated in the disease; where a depressant or sedative really is required, we ought to administer the tincture of digitalis in preference to any of its other preparations, and this may be given alone in tolerably full doses, at intervals of ten, or twelve hours. This action of the drug has not been found particularly increased by combination with conium, hyoscyamus, hydnaric acid, etc., as many have supposed. On the contrary, when we oppose the subdue tumultuous action of the organ, its effects will be increased by combination with the different antispasmodics, such as camphor, assafoetida, galbanum, ammonia, and Hoffman's anodyne. Dr. Munk gives the dose in the dose of half an ounce to an ounce every six or eight hours, occasionally recommends very gentle exercise, in order to prevent its action on the heart. If in the course of a week it takes no effect, he relinquishes its use for the time; but if it take proper effect on the kidneys, it may be continued for a considerable time without injurious consequences. Both he and Dr. Pereira seem to deny altogether the dangerous effects attributed to this medicine by some writers.

Part x., p. 50.

Digitalis as a Local Remedy.—Mr. H. Jackson has been in the habit of using digitalis, in the form of a liniment made with the powdered herb and honey, first, to scrofulous ulcers generally, where the bones are affected; secondly, to those ulcerations about the joints in which the vessels are frequently implicated; and thirdly, to scrofulous sores, directly arising from disease of the bone. When there is an excess of inflammation,

it acts partly as a sedative and partly on the capillaries, moderates the discharge, and substituting pus for ghairy

Part x., p. 175.

DIPHTHERITIS.

Diphtherite compared with Scarlatina.—The commencement of diphtherite is hardly accompanied by any febrile affection, or the attack is quite ephemeral, and the pulse soon sinks to its natural standard. The organic and vital functions are often so little deranged, that children are menaced with very severe attacks of the disease do not lose their appetite, nor are they prevented from pursuing their usual games. The scarlatina is ushered in by commotion in the circulating system, similar to that produced by the bite of a venomous reptile, and the respiratory movements are equally affected. The digestive functions are for the most part deranged, and vomiting and diarrhoea, together with great nervous depression, which increasing, rapidly announce a fatal termination. The diphtherite is not marked by any definite periods in its progress, as is the case with scarlatina. The diphtherite, if it does not cause death by its mechanical obstruction, degenerates into a chronic affection; whereas the progress of the other is very rapid toward a fatal termination at all periods of its duration. The former proceeds from a single point, and spreads with more or less rapidity over the surfaces, which it attacks gradually, and it manifests a peculiar tendency to attack the respiratory passages. The scarlatinal inflammation diffuses itself over the mucous surfaces, but has no peculiar tendency to attack the air tubes. In the former case, if death occur within the first periods, it is from mechanical obstruction to respiration; in the latter, no organic lesion justifies the cause of death. If topical applications modify the diphtheritic inflammation, the health is restored as soon as the local complaint is terminated. This is far from being the result in the scarlatinal inflammation, which, when relieved from all its local characters as affects the throat, is followed by a host of untoward symptoms.

Part xii., p. 17.

Diphtheritis.—[Mr. J. D. Brown remarks upon the insidious nature of the symptoms and the frequently fearful rapidity of its termination. He has repeatedly seen children, apparently in good health, suddenly seized with croupy breathing and laborious respiration, denoting its attack upon the larynx, and die within four hours from such sudden invasions. In many cases these alarming symptoms would seem to be relieved entirely, and the favorable state might continue for a few hours, and then another similar attack terminate the case at once. In other cases the change proved slow, hesitating, and doubtful for hours and days. Mr. Brown proceeds to speak of the]

Treatment—General and Local.—Local treatment is the sheet-anchor. The only one I found of use was a strong solution of nitrate of silver, never less than ʒj. to ʒj., sometimes ʒij., applied liberally three times a day, or oftener in very severe cases, to the tonsils and affected parts, with a piece of sponge fastened to a quill.

Blisters and leeches were useless, often worse than useless: they exhausted and hastened death in every case. I found ext. belladonnae and ung. hydrarg. fort., in equal proportions, of apparent use in relaxing the spasm of the laryngeal muscles, when laid thickly on the windpipe. It was only a palliative.

General Treatment.—I depended on calomel, in combination with ipecacuanha, in doses of about half a grain each, every four or eight hours.

I never lost a case, however severe, where I had established ptyalism. In three severe cases—a man of forty, a boy of twelve, and a girl of twelve—the croupy symptoms gave way, the false membranes, instead of maintaining their dangerous, blankety, continuous appearance, became patchy, and dissolved away like melting snow. The moment ptyalism was established, and not till then, I gave wine, and decoct. senegæ, and ammonia, and iodide of potassium, at the same time. Emetics I found of great use in the first stages; they always relieved the distress in breathing, and carried away large quantities of mucus; in the last stages they only exhausted, and often would not act at all. The inhalation of vinegar vapor, and the vapor of hyd. c. cretâ, I have thought useful in desperate cases. They seemed to prolong life in all cases, but never saved it.

I would in every case most unhesitatingly trust to the topical application of nitrate of silver in solution, and the internal administration of mercury, paying due attention to the powers of the system, supporting it with wine, quinine, and ammonia when required, taking great care not to debilitate nor exhaust by bleeding, warm baths, etc.

I can venture to assert that the above treatment, if commenced at any period of the disease before the larynx becomes implicated, will succeed. The only cases I lost were those where the larynx and pharynx were simultaneously affected, the disease having commenced primarily in the stomach two or three days before, as evinced by vomiting, rigor, and general indisposition, and those where the laryngeal implication had shown itself before aid was sought. I had the benefit of a *post mortem* examination in two cases: the pharynx, tonsils, larynx, trachea, and bronchial tubes were more or less coated with false membrane, the larynx and trachea were thickly coated, the stomach showed symptoms of great irritation also.

Part xxiii., p. 117.

Diphtheria.—The use of tincture of muriate of iron in this disease is much recommended, not, indeed, as a specific, but as a rational method of treatment. Its use should be commenced as early as possible, not desisting when the exudation has disappeared, but persevered with till the prostration has given way to the vigor of returning health. This treatment should be conjoined with the use of stimulants, and careful nourishment of the patient. A few drops of hydrochloric acid may be added to each dose of the tincture (about 25 minims every two or three hours), and the dilute acid may also be applied locally by means of sponges, and weaker gargles of the same may be used regularly. *Part xxxviii., p. 79.*

Chlorate of Soda as a Substitute for Chlorate of Potash.—M. Guéneau de Mussy states, in the "*Revue Médicale*," that, struck by the little solubility of chlorate of potash, he substituted chlorate of soda for it, as the latter salt is much more soluble than the former. The taste of the chlorate of soda is, besides, less disagreeable than that of the other salt, and can also be given in a small quantity of vehicle. M. de Mussy has given the chlorate of soda in several cases of diphtheria with uniform success.

Part xxxviii., p. 276.

Diphtheria.—Even in the mild form of this disease, except a brisk calomel purge, under no circumstances should any antiphlogistic measures be resorted to, but a liberal diet at once enjoined. In the severer form, if the practitioner be misled by the feverish excitement, and induced to adopt antiphlogistic measures, a fatal mistake would be committed. The

disease is analogous to adynamic erysipelas, and requires wine and nutritious diet. Chlorate of potash and tincture of sesquichloride of iron are the medicines most calculated to be beneficial, and in some cases quinine Mercury seems to be especially contra-indicated, and blisters are worse than useless.

Part xxxviii., p. 46.

Diphtheria and Cynanche Maligna.—Give the following: Pulv. gum. 3ij.; sacch. pur. 3j.; pulv. nectis 3ss.; aquæ 3vj. Misco, et addo potass. chlorati 3ss. Fiat mistura cujus sumantur coeh. ij. magna 2da hora. Instead of using the solid nitrate of silver, use the following gargle: Sol. nit. chlor. 3j.; sacch. pur. 3ss.; aquæ 3vj. Fiat gargarisma saepe utendum.

Part xxxix., p. 47.

Diphtheria.—The diphtheritic exudation depends on a parasitic fungus, the *oidium albicans*, and in the treatment of the affection "antiseptics and parasitocides appear to be the most efficient remedies." Of these the tincture of the sesquichloride of iron (an antiseptic) and the hydrochlorate of potass are the most efficient. The latter taken alone will sweep away the pellicle in a few hours. Hydrochloric acid is also useful.

Part xxxix., p. 47.

Diphtheria.—After clearing the bowels with calomel and rhubarb, order strong beef-tea, wine, and above all, Bass's pale ale; patients express themselves much relieved in the throat as it is swallowed, and feel greatly exhilarated after taking it. One ounce of the compound tincture of quinine taken in wine and water every four hours, is a medicine of the greatest use. Apply nearly equal parts of honey and concentrated nitric acid by means of a probang about every sixth hour. After stripping off the false membrane, a gargle made with tannic acid and water affords great comfort.

Part xxxix., p. 47.

Diphtheria.—The local application of strong nitrate of silver solution is almost "indispensable." Internally, chlorate of potash and hydrochloric acid may be given according to the following formula: Chlorate of potash, two drachms; hydrochloric acid, one drachm; water, eight ounces. Half an ounce for a dose every one, two, or three hours, according to the urgency of the symptoms. The undiluted acid should be poured upon the powdered salt, whilst in the mortar, and as soon as the powder assumes a yellow color, and fumes of chlorine arise, dash in the water, by which the decomposition is arrested and the free chlorine retained in the solution. Where the disease extends to the larynx and trachea, and the symptoms become croupy, small doses of calomel and antimony are demanded, the system at the same time being supported by stimulants.

Part xxxix., p. 47.

Diphtheria.—A case is related illustrative of several important points of treatment. On the third day, the disease progressing and considerable exudation existing, a strong solution of nitrate of silver was applied, the exudation being previously removed as far as possible without the use of force. In four hours the report states that the breathing had become "noisy, not from implication of the larynx, but from blocking of the posterior nares from increased swelling." Now in such cases the local treatment cannot be too soothing and gentle. One point more is particularly worthy of note, that inhalation of steam seemed always to give great relief, and two distinct attacks of laryngeal spasm were relieved by it; a hot

infusion of chamomile was used. A carefully strained infusion of chamomile used by means of a laryngeal or other syringe, to wash out the throat is peculiarly grateful—and in children, if there be much accumulation behind the nares, it is a useful plan to syringe the throat through the anterior nares, with the same infusion, and the throat outside may be surrounded by soothing warm applications. *Part xxxix., p. 28.*

Diphtheria.—Many cases of diphtherite, seemingly the most trivial, prove unexpectedly fatal, and in these cases indications of impairment of the renal functions are constantly precursory of an unfavorable termination. Hence the necessity of, morning and evening, making an examination of the urine; if albuminuria be present, the prognosis should be carefully guarded, though not necessarily fatal.

* * * * *

It will be found that chlorate of potash, used freely as a mouth-wash, acts just as well in ulcerative stomatitis (a diphtheritic affection) as when given internally. Why not try the chlorate as a topical application in cases of pharyngeal and tracheal diphtheria? By means of a sponge probang and a larynx syringe, a solution might without much difficulty be brought into contact with these parts. A saturated solution should be used, and freely and frequently applied. *Part xxxix., p. 32.*

Diphtheria.—The following plan of treatment has been found of the greatest use in this affection: 1. A temperate, dry, well-ventilated room as can be obtained, no one being allowed to sleep in it except an attendant. Crowded bedrooms and animal effluvia are an exciting cause. 2. A calomel purgative, varying in strength according to the age and size of the patient; and in children, where symptoms of laryngitis appear, a rapid exhibition of the chloride of mercury, such as a grain to two grains every hour till the breathing is easier, and then every three or four hours, till the false membranes are loosened, the bowels evacuate green stools, or vomiting. 3. The decoction of cinchona with hydrochloric acid, varying the dose of the latter from one minim to ten every four hours, in from a teaspoonful to two tablespoonfuls of the former. 4. Gargle with chloride of sodium and vinegar, a tablespoonful of each in a teacupful of hot water; also inject this up the nostrils when they are becoming obstructed. This exceeds all other gargles; it relieves the breathing and the fætor, and causes the ulcers to heal. 5. Apply the stick of nitrate of silver to every part where false membrane or exudation can be seen. When the disease spreads beyond the reach of the caustic case, a probang and clean sponge, well saturated with a strong solution of nitrate of silver, will answer. 6. Rub the external fauces with compound iodine ointment night and morning; and where erysipelas may appear, apply the stick, and lay on a plaster of strong mercury ointment. 7. Keep the room and all else sweet and clean. 8. A nutritious diet is necessary. A little mutton every day; boiled milk, rich gruels, and beef-tea, with hot port-wine and water (half wine with sugar and lemon), for all above ten years, and warm milk-and-water for minors. All things should be taken warm. Cold drinks are an exciting cause. *Part xxxix., p. 33.*

Diphtheria.—Turpentine, in many cases, acts somewhat similarly to mercury, preventing effusion of lymph, but stimulating instead of debilitating. It is frequently appropriate where mercury cannot be used, and

may be employed with much advantage in diphtheria. To a child of five to six years of age, give ten minims of the spiritus terebinthinæ every second hour, and five grains of the carbonate of ammonia every second hour, the child taking the turpentine one hour and the ammonia the next. The turpentine may be mixed up with egg and sirup. Besides this, the child should take port wine, porter, and beef-tea, or wine with the yolk of an egg, *ad lib.* This plan of treatment is most applicable to cases when decided croupy breathing and fits of suffocation have made their appearance.

Part xxxix., p. 14.

Diphtheria.—The following plan of treatment was found very successful during a severe epidemic of this disease last year, at an asylum for imbeciles at Croydon. There were fifty cases with only one death: *R* Solutio chlorinii, ʒss.; sirupi simplicis, ʒss.; aquæ destillatæ ad ʒvj. *M.* Fiat gargarisma sæpe utendum. *R* Solutionis chlorinii gtt. iv.; sirupi auranti, ʒj.; aquæ destillatæ ad ʒss. *M.* Fiat haustus 2ndâ quâque horâ sumenda. The dose was increased according to age. Calomel was given in doses of one grain and upward, according to age. The diet, too, consisted of concentrated jellies, strong beef-tea, wine, &c. After the third day, quinine was added to the chlorine solution. The same mode of treatment was adopted in adult cases, except that, instead of calomel, the hydr. c. was given.

Part xl., p. 14.

Diphtheria.—The plan invariably adopted by Dr. Gennings, regardless of sex, age, or incubation of disease, has been to give an active emetic of antimonial wine, from half an ounce to an ounce, according to age; to freely cauterize the throat with solid nitrate of silver; to have a mustard poultice applied from ear to ear; the feet and legs plunged in a hot bath; and the patient confined to bed. After the emetic action has ceased, from three to five grains of calomel with five of compound extract of colocynthis were given (or, for a child, two grains of calomel with two grains of compound antimonial powder); and, four hours afterward, the following mixture: *R* Quinæ disulph., ʒss.; potassæ chloratis, ʒj.; acidi hydrochlorici diluti, ʒss.; aquæ, ʒviij. *M.* Fiat mist. ejus sumatur pars sexta tertia hora. A gargle of chlorine solution must be frequently used to sponge out the fauces; it may be prepared by impregnating water as much as can be borne with the protoxide of chlorine. The diet must be at first farinaceous, and afterward consist of strong broths. The whey may be given alternately with quinine, which last is to be used in large doses.

It is of the greatest importance that end nothing answers so well as a strong solution of nitrate of silver in the treatment, a weaker solution of the same salt, or, if necessary, one part of hydrochloric acid to three of water, in case of inflammation is more sthenic, and such applications are desirable. Of all the remedies at our choice, the tincture of the iodine, which Mr. T. H. Smith chiefly re-
 * * *

at the local inflammation, by using the fauces, and thus to the throat, used, or by the use of a strong steam and which pro-

DISINFECTANTS.

Ledoyen's Disinfecting Fluid.—Its efficacy is said to depend on its power of destroying the odor of sulphureted hydrogen. Many substances, however, are said to be capable of doing this, such as sulphate of copper, nitrate of copper, chloride of copper, nitrate of lead, etc.

The editor of the "Dublin Quarterly Journal" comments on this report:

"A disagreeable odor does not constitute infection, although a stink may, under certain circumstances, afford a valuable index to infection; thus, in the wards of a hospital, if the medical attendant has his sense of smell unpleasantly assailed, it is a signal that ventilation has not been sufficiently attended to, and he can, accordingly, order this neglect to be remedied; but if the care-takers of the ward have at their disposal an agent for conquering this stink—a liquid, which, upon being poured into the chamber-vessels, or sprinkled on the ward, will remove all unpleasant effluvia—then the safeguard afforded by the senses becomes nugatory: the unpleasant odor is removed, but the contagious poison continues and accumulates. It is like taking away the beacon, while the rock remains. Such a substance may lessen the trouble of the nightmen and wardsmen, and dissecting-room porters, whose eulogistic testimony to the value of M. Ledoyen's fluid, is published by the House of Commons in the paper before us, but we feel persuaded that its employment would prove very injurious in practice."

Part xvi., p. 45.

Disinfection.—Pound the well-dried raw bean of coffee, and strew it over a moderately-heated iron plate till the powder assumes a dark-brown tint; it will then remove almost any noxious effluvia.

Part xvii., p. 304.

A Comfort for Bed-ridden Patients.—Mr. Hovell adopted the following simple means in the case of a patient who had lost the use of the sphincters. They proved a great comfort both to the patient and surgeon. He says:

Eleven days ago, I adopted the plan of placing beneath her a calico bag two feet square, partially filled with Irish peat-charcoal, so as to form a sort of cushion and absorbing medium. It has had the happy effect—which continues even now, without any necessity for changing the charcoal—of completely neutralizing all unpleasant odor; and if the bed becomes partially wet, all the offensive ingredients are absorbed and neutralized by the charcoal, which thus is a most simple means of remedying a great nuisance, and one that requires the most strict attention, at best, to prevent, and that attention is often difficult, and always expensive, to procure. In cases of incontinence of urine particularly, and, indeed, all attended with fetid discharges—cancer, compound fractures, etc., this plan, or some modification of it, might be adopted with advantage.

Part xxv., p. 340.

Disinfectant.—In Carlisle, on the suggestion of the Rev. Mr. Dew, great comfort has been found in introducing a few shovelfuls of soot as a deodorizer in the removal of night soil and manure.

Part xxviii., p. 330.

Charcoal.—This is an admirable *deodorizer*. Take two sheets of coarse wool and between them put a tolerably thick layer of powdered charcoal, and quilt the whole together in small segments, the same as in making a cushion. This charcoal quilt is to be placed over any nasty smelling place, and will prove a good disinfectant. *Part xxx., p. 16.*

Charcoal as a Disinfectant.—Mr. Turnbull, nine months ago, placed the bodies of two dogs in a wooden box on a layer of charcoal-powder of two inches in depth, and covered them over with a quantity of the same material. Though the box was quite open and kept in his laboratory, the effluvia was ever perceptible; and on examining the bodies of the animals at the end of six months, scarcely anything remained of them except their bones.

Mr. Turner subsequently, about three months ago, buried two rats about two inches of charcoal-powder, and a few days afterward the body of a full-grown cat was similarly treated. Though the bodies of the animals are now in a highly putrid state, not the slightest odor is perceptible in the laboratory. From this short statement of facts, the utility of charcoal-powder as a means of preventing noxious effluvia from churchyards, and from dead bodies in other situations, such as on board ships, is sufficiently evident. Covering a churchyard to the depth of two or three inches with coarsely powdered-charcoal, would effectually prevent all putrid exhalations ever finding their way into the atmosphere. Charcoal-powder also greatly favors the rapid decomposition of the dead bodies, in which it is in contact, so that in the course of six or eight months, little is left except the bones. *Part xxx., p. 16.*

Ephemeral Preparation of Chlorine as a Disinfectant.—The chloride of lime, usually employed as a means of disengaging chlorine, has, besides its price, the inconvenience of being rather rapidly exhausted. M. Lambussy substitutes for it a cheap and simple preparation, consisting of common salt, red-lead, sulphuric acid, and cold water. The red-lead is mixed with the salt, and introduced into a bottle full of water. The sulphuric acid is added afterward gradually, and shaken at intervals. By the process, sulphate of lead is formed and precipitated, and sulphate of soda and chlorine remain dissolved in the water. The chlorine, which gives the liquid a yellow color, is disengaged as soon as the bottle is opened. To produce a more rapid disengagement, the liquid is poured into flat plates, so as to offer a large surface for evaporation. *Part xxxviii., p. 17.*

DISLOCATIONS.

Cure of an old Dislocation of the Humerus, by division of the Muscles in its Neighborhood.—Professor Dieffenbach, of Berlin, relates the following case of reduction of a dislocated humerus of two years standing:

The patient was of a giant, powerful form, with a pale complexion, and but little fat, and his muscles were strong and prominent under the skin. The injured right shoulder was an inch higher than the left; the acromion formed a short angle; on the outer side, the shoulder was deeply hollowed, and the scapula lay flat. The right arm was thinner than the left, and

stood out far from the body. The head of the humerus lay on the anterior side of the chest, close to the clavicle, and two inches from the upper portion of the sternum. The patient had a constant sensation of cold in the limb, and the creeping which he had formerly felt had ceased. The pulse in the right radial artery was rather weaker than that in the left. The limb was useless, and only the hand could perform some slight actions.

By moving the arm in different directions, severe pain was produced in the part where the head lay surrounded by a thick wall of dense ligament into which it had worked itself. In drawing the arm outward from the body the pectoralis major, latissimus dorsi, teres major and teres minor became tense with extreme pain. The last three of these muscles felt hard and tense, even when the arm was not drawn outward. An attempt to reduce such a dislocation without dividing these muscles and the new joint, would have been extremely dangerous, and had been found impossible; but (says the professor) I anticipated success from the subcutaneous division of everything that resisted me.

The patient being placed on the table, with one folded sheet passed under the right axilla, and held by six assistants, another fastened round the right hand and held by six more, and a third round the upper part of the humerus held by three more (in the manner usually adopted by me in old luxations), the first two sets of assistants were ordered to pull against each other. I next bade them make a slowly increased extension, and then stop; I then passed a small scythe-shaped knife through the skin, and divided the most tense portion of the pectoralis major close to its tendon, which yielded with a cracking sound. I then again introduced the knife at the posterior border of the axilla, and divided, one after the other, the latissimus dorsi, the teres major and the teres minor. All these muscles gave way with a cracking noise, which was increased by the resonance of the chest. I next passed my knife into three places by the head of the humerus, and divided, in a similar manner under the skin, the dense and hard false ligaments which surrounded the new joint, and lessening the extension, I loosened the head by a few rotations.

A powerful extension was now again commenced on both sides, and the three assistants behind the patient pulled suddenly, while I conducted the humerus toward the joint, into which it slipped on a sudden, without again springing out. One shoulder looked now just like the other. The thorax, the shoulder and the arm were enveloped with bandages which were soaked with paste, and after a few hours they all became dry and hard, and prevented any motion of the right side.

The bleeding from the wounds, which were not larger than those made in phlebotomy, was, at most, a few drops. No unpleasant symptoms ensued.

On the ninth day I took off the bandage; both shoulders had exactly the same level and form, and there was neither swelling nor pain. The punctures in the axilla had completely healed, and scarcely a trace of them could be found; there was no collection of blood or pus. The limb is now restored to perfect utility.

The professor adds that he had lately occasion to reduce a luxation of the foot backward, of upward of a year's standing, by dividing the tendo Achillis, which forcibly drew the heel upward. This limb, also, became useful again.

Part i., p. 112.

The use of Tobacco or Tartar Emetic in Dislocations.—Preferred as copious bloodletting, for the purpose of effecting relaxation of the muscular system. Part I. p. 111.

Aphorisms of Practical Surgery.—The difficulty of reducing dislocations of the *phalanges* is attributable chiefly to the displacement of the tendons, and their escape from the grooves in which they play.

There is one sort of *luxation of the shoulder* exceedingly difficult of restoration, viz.: that in which the head of the humerus is moved *inwards and upwards*, and which is usually occasioned by a fall down a staircase. The displacement is to a considerable extent, the head of the bone touching the clavicle, and being situated above the level of the acromion process. Dupuytren determined by numerous experiments on the dead body, that the main obstacle to the reduction is, that the head of this process is often entangled in the substance of some tendon or muscle.

When such is the case, no mechanical effort can overcome the resistance without danger.

Luxation of the Astragalus may arise from falling with force upon the feet. Part III. p. 111.

Dislocations of the Astragalus.—This bone may be displaced in eight directions, viz.: 1, forward; 2, forward and inward; 3, forward and outward; 4, upward and outward; 5, outward; 6, inward; 7, backward; 8, backward, downward and backward.

As a general rule, in the treatment of these cases, the bone ought to be replaced if possible. It is of great importance to distinguish between complete and partial dislocation of the bone, because in the latter reduction is very possible, while in the former almost impossible, on account of the powerful approximation of the tibia to the calcis; and even if in the latter case the tibia and os calcis could be sufficiently separated to allow the bone to be replaced, it becomes very questionable whether or not the practice would be good, on account of the insufficient vascular connection which we may be sure would result from the severe laceration previously experienced. In one instance only has a complete dislocation been partially reduced; and it is evident that in such a case, if compound, the unreduced portion of the bone should be excised, to prevent the foot from becoming permanently fixed by the mechanical obstacle. In the case published of dislocations forward, inward and outward, simple as well as compound, Mr. Turner states that, in many instances, the bone sloughed where extraction was not performed, but in all the instances of luxation backward, with one exception, the bone scarcely seemed to act at all as an extraneous body, *i. e.*, it neither died nor did it excite any great amount of local or general disturbance. In the dislocations backward, therefore, extirpation of the bone is scarcely called for. In irreducible simple dislocations forward, inward and outward, Mr. Turner would not extract the bone in the first instance, but in some compound cases he would not hesitate to do so without a moment's delay; at the same time he states that where the complete dislocation is simple, we may hazard the chance of allowing the bone to remain in its new situation, to be afterwards amputated if necessary or left to slough away. In a case of partial, simple

irreducible dislocation forward, outward, or inward, the best practice, perhaps, would be not to interfere, but leave the case to the resources of nature; but in partial and compound or compound and complicated (reduction failing) excision, if practicable, of the protruded portion of bone should be performed; but not in partial and simple dislocation without any external wound. When the displacement is complete and simple, and cannot be reduced by moderate efforts, it ought to be left to nature; and should the skin inflame, and ulceration of the skin threaten, an incision may be made over the bone, which may then be extricated by the efforts of nature or art, according to circumstances. *Part viii., p. 81.*

Dislocation into the Ischiatic Notch—Diagnostic Sign of.—Mr. Syme has narrated, in the "London and Edinburgh Monthly Journal," a case where the occurrence of the dislocation was determined by the presence of a particular sign, which appears to be of much importance in the diagnosis of a dislocation which Sir Astley Cooper has described as "the most difficult both to detect and reduce." There is less deformity and fixity of the limb than in any other of the displacements of the thigh-bone. "This obscurity (says Mr. Syme) is much increased by attempts to effect reduction, since a moderate degree of extension almost entirely removes the shortening and inversion, which are usually considered the most characteristic symptoms. I think it, therefore, of consequence to state, that there is another feature of the injury which, according to my experience, is never absent—always well marked—and not met with in any other injury of the hip-joint, whether dislocation, fracture, or bruise. This is an arched form of the lumbar part of the spine, which cannot be straightened so long as the thigh is straight, or in a line with the patient's trunk. When the limb is raised or bent upward upon the pelvis, the back rests flat upon the bed; but as soon as the limb is allowed to descend, the back becomes arched as before. By attention to this symptom, I have been enabled to recognize the existence of dislocation into the ischiatic notch, when it had been unnoticed by others; and, on one occasion, when it was supposed that the replacement had been effected through powerful extension by the pulleys. *Part viii., p. 160.*

Reduction of Dislocations by the Power of Twisted Rope.—The mode of application is as follows: Place the patient and adjust the extending and counter-extending bands as for the pulleys; then procure an ordinary "bed cord," or "wash line," tie the ends together, and again double it upon itself; then pass it through the extending tapes or towel, doubling the whole once more, and fasten the distal end, consisting of four loops of rope, to a window sill, door sill, or staple, so that the ropes are drawn moderately tight; finally, pass a stick through the centre of the double rope, dividing the strands equally by it; then, by revolving the stick as an axis or double lever, the power is produced, precisely as it should be in such cases, viz., slowly, steadily, and continuously, which, with the aid furnished by the surgeon to the immediate seat of the lesion, and to the system in general, cannot fail to conduct the case to a happy issue.

Part xii., p. 151.

Compound Dislocation of the Astragalus.—On the 4th of November a laborer, æt. 42, of stout and muscular conformation, was admitted into St. Thomas' Hospital, with compound dislocation of the astragalus inward.

On examination, the accident appeared of the nature of a compound dislocation of the tibia inward, with fracture of the fibula. The foot was everted; the outer edge of the sole inclined upward, the inner edge downward. On the inner side of the foot there was a lacerated wound of the integuments, extending from below the internal malleolus, about three inches in length, forward on to the instep. The integuments were contused and lacerated to a great degree on the outer side, the wound extending from above the outer malleolus across the foot to the metatarsal bone of the second toe, a large flap of skin having been torn up, and a deep chasm exposed beneath: on both sides the tendons were exposed. The anterior and posterior tibial arteries were not injured, and their pulsation could be distinctly felt, though anteriorly only a narrow band of skin, about an inch and a half in width, was left between the two wounds, connecting the skin of the leg with that of the foot.

The inner malleolus, though not bare, projected through the wound on the inner side. On the outer side, the fibula, which was fractured about two inches above the external malleolus, was completely exposed. Reduction was attempted by Mr. Solly, who visited the man a short time after admission, but with no avail. On consultation between Mr. Solly, Mr. Mackmurdo, Mr. Solly, and Mr. Travers, it was determined that an attempt should be made to save the limb, to saw off the extremity of the tibia, and to reduce the dislocation.

For this purpose the man was placed upon the table; the wound on the inner side dilated, and the internal malleolus laid bare. The tendon of the flexor digitorum communis was drawn aside by a retractor; while that of the tibialis posterior being so much on the stretch as not to allow of retraction, was divided. At this stage it was discovered that the prominent projection of bone on the inner side was a portion of the astragalus, in connection with the tibia, but separated from the os calcis and navicular bone. It was therefore determined to remove this bone, which was done, and the foot was then easily brought into its natural position. The integuments were now brought together by sutures, and strips of adhesive plaster; the patient sent to bed, and the limb confined in a swing-box.

[On the 11th there was inflammation of a low character about the wound, and affecting the absorbents; on the 22d, he was requested to have the limb removed, and Mr. Solly amputated the limb below the knee; a considerable amount of blood was lost during the operation.

Dec. 2.—The thigh much swollen, tongue red and tremulous, and protruded with difficulty. Next day an opening was made near the hip, and three pints of unhealthy pus evacuated; stump appeared healthy. He gradually sunk and died on the 12th. Mr. Solly remarks on this case:

This form of dislocation was new to me, and in weighing the arguments *pro* and *con* amputation, I did not put this into the balance. I candidly confess that if we had, I think it would have just turned it in favor of amputation of the limb; for the dissecting out of the astragalus from the socket of the tibia is certainly a more serious operation than sawing off the end of the tibia. It is true that the astragalus has been frequently removed in compound dislocations, and the patient recovered; but I think, on looking back to all the circumstances of this case, that it added so much to the already extensive injury of the soft parts, that if a similar case were to come before me, I should not be tempted to try by such means to save the limb.

I would, indeed, advise you, in any analogous case, where you might consider it necessary to remove the astragalus, or saw off the end of the tibia, in order to return the bones to their place, never to make a fresh incision to effect it, if you have already an extensive wound in another direction. If you cannot remove the astragalus without so doing, then to remove the whole leg in preference. In the case we have just been considering, there was an extensive lacerated wound on the outside of the foot; but this wound was not in a direction to admit of either the removal of the base of the tibia through it, or the astragalus; and though there was a wound on the inner side, still this wound did not communicate with either of the above-mentioned bones. In order to extract the astragalus, it was necessary to carry this wound down to them, which most undoubtedly added much to the previous injury, and danger of constitutional irritation.

I have remarked, that in those cases in which the astragalus has been successfully removed, it has been removed rather through an original wound, or a dilatation of the original one, or in cases of dislocation, where of course only one wound need be made for the purpose.

[A practical point involved in accidents such as this, is the question of primary or secondary amputation. Mr. S. remarks:]

In this individual case I must say that I think the man would have had a much better chance of recovery if the leg had been amputated in the first instance instead of removing the astragalus, and waiting.

[The late Mr. Colles, of Dublin, was very much opposed to amputation for compound dislocation of the ankle; he made the following remarks on this subject:]

If you must amputate, wait at least until the symptomatic fever has subsided. If there is a necessity to amputate after hectic fever has set in, which, as I have already said, may occur, the hectic will immediately subside after the operation, provided the fever be not owing more to constitutional than local causes. A man, who is in perfect health the moment before he met with an accident, and from which he got a severe shock, is not a fit subject for an immediate operation.

Part xiii., p. 200.

Use of Ether in Dislocations.—Put the patient under the influence of ether to relax the muscles, and renew the inhalation upon evidence of pain being manifested. The patient may be led to incipient syncope, and nauseating doses of antimony, together with the warm bath, may also be employed as auxiliaries, immediately preceding the inhalation of the ether.

Part xv., p. 167.

Dislocated Thumb.—Seat the patient with his back to the surgeon, and carry the arm, with the wrist and thumb bent, over the shoulder; then make extension.

Part xv., p. 168.

Old Dislocations.—Old dislocations may be successfully reduced by proper management, even when alteration has begun to take place in the form of the bones. The proper method is to make gentle extension every day for a few weeks, so as to loosen the attachments of the artificial joints, and lengthen the muscles, nerves, vessels, and ligaments; so that when the final pull is given, there may be no risk of laceration. When this has been carried sufficiently far, reduce the dislocation, and keep the parts tied up for a fortnight or thereabouts; then employ passive motion.

Part xvii., p. 125.

Dislocation reduced under the Influence of Chloroform.—[This was a case of dislocation of the left humerus into the axilla, of eleven days' standing, occurring in an athletic railway laborer.]

An attempt was at once made at reduction by means of the heel in the axilla, but without any sensible effect being produced. Two hours after he was seen by Mr. Page, who directed that the same means should be again employed, the patient being placed under the influence of chloroform; accordingly, the man being placed on a couch, about a dozen sprinkled on a handkerchief was held before his face, which speedily produced a state of perfect unconsciousness. The heel was placed in the axilla, and extension made from the hand, the operator receiving no assistance from pulleys, or any other person, and in two minutes the head of the bone resumed its lost seat on the glenoid cavity of the scapula.

Part xvii., p. 17.

Knee—Luxation of the Semilunar Cartilage of.—[The internal cartilage is most frequently luxated, and the accident is marked by the knee becoming locked, on some quick motion of the trunk about the knee; one leg; sometimes there is great pain, and a slight projection of the cartilage beyond the margin of the head of the tibia. With regard to treatment, Mr. Vincent tells us that,]

The true way of manipulating here is to place the patient on his affected side, with the limb bent, and then to rotate gently the tibia on its axis. In this position the joint is loose, making no pressure on the cartilage, and it has the best chance of quietly slipping into its place. I have often known in this luxation, when left alone, that whilst the patient was asleep, the cartilage has slipped into its place after a few days.

I have seen great violence used in efforts to reduce the cartilage to its place, but all to no purpose. If the gentle rotatory motion does not succeed, the only thing is to keep the patient in bed, and in some of these cases all will come right. Of course, if this accident has once occurred, it will be liable to happen often.

Part xvii., p. 18.

Dislocation of the Shoulder.—For the most part, this luxation is often reduced, but now and then it so happens that the patient is particularly strong and athletic, and the surgeon perhaps just the reverse. This being the case, his efforts may prove unavailing, and a further outlay of power be required. Supposing the common methods of reduction, as by the heel in the axilla, or the heel in the same, the extension by the hand, &c., have failed, in such a case the same means can be applied as for dislocation of the femur, and reduction effected by torsion: or the following method will be found efficacious:

The patient being placed on a sofa or bed, or on the floor, the heel is to be placed in the axilla (the same as for reduction by extension at the wrist), and a long towel, or narrow sheet, is to be applied immediately above the elbow, embracing the condyles of the humerus, by means of a noose similar to the clove-hitch, and the two ends brought forward and tied firmly behind the back of the surgeon, he leaning forward a little while doing so. The towel or sheet should be rendered damp at that portion which encircles the arm, and it should cross the back, low down, over the lumbar region. The knee being kept straight, or nearly so, powerful extension can now be made, as the position of body is well adapted for the exertion of great physical strength, all the powerful muscles of the back being strained.

tageously brought into play. At the same time, the arms and hands are free, and the patient's fore-arm being bent to a right angle with the upper arm, can be used as a lever in manipulating the reduction.

Part xviii., p. 156.

Old Standing Luxations.—On this subject, Mr. Vincent observes:

A case presented itself to me, in which the humerus had been luxated seven weeks. Extension was conducted in the usual way for a long time, and with the fullest force, and no reduction resulted. I then drew the limb across the chest obliquely, and by this means returned the head of the bone into the glenoid cavity with very little effort. A maid-servant fell downstairs and injured her shoulder; a practitioner living near was sent for, who was not aware it was a luxation. The mistress sent her to me at the end of six weeks; I saw the nature of the case and took her to the hospital. I first tried the usual plan in vain; I then placed a thick body just in front of the axilla; and by first drawing the arm down, and then carrying it across the chest over the body, the bone slipped easily into its place. The perfect use of the limb was ultimately recovered. Thus, it is not by the force of extension, but by the adaptation of appropriate manipulation, that old cases are to be reduced. The bone is easily replaced, and as easily put out again, so that a long observance of immobility must be insisted upon after the reduction, before the limb will become quite restored.

I consider that it is highly proper for the security of the joint that the limb, after a luxation, should be kept at rest for some weeks.

Part xix., p. 122.

Dislocation of the Head of the Femur Backward.—In making extension for the reduction of this dislocation, let the thigh be placed at a right angle, or nearly so, with the abdomen, keeping it at the same time in a state of abduction, and having the knee bent.

Part xix., p. 123.

Dislocation of the Astragalus.—The following plan has succeeded in a case of dislocation inward. Chloroform being administered, and the limb being laid on its outer side in a semi-flexed position, extension is made from the heel and foot by two assistants, the hands of one superposed over those of the other; and counter-extension is made by two other assistants from the thigh. The surgeon pushes the external margin of the foot with his knee, so as to produce great adduction of it, and then presses upon the astragalus with both his thumbs.

* * * * *

In cases of simple dislocation, attempt reduction. Administer chloroform, employ extension and counter-extension at the knee and foot respectively, and make direct pressure upon the dislocated bone. If the tendo Achillis is very tense and seems to hinder the reduction, divide it.

Part xix., p. 125.

Dislocation of Lower Jaw.—It is not on the condyle that we must fix attention to find the cause which renders the dislocation permanent, but on the coronoid process and the malar bone, since it is in the contact of these two bones that almost all the difficulty of reduction resides. And therefore to succeed, according to the process of M. Nélaton, it is necessary to act either by the interior of the mouth, taking a point of support behind the mastoid processes, or externally, by the operator taking a posi-

tion behind the patient and making pressure on the coronoid process, pushing it downward and backward, to disengage it from contact with the malar bone, at the same time the patient opens the mouth. This is effected by pressing in the direction mentioned, placing the thumb upon the coronoid processes. If this force is not sufficient, the head must be supported by an assistant; or a band may be passed around it, in which the operator can engage his index and middle fingers, while the thumb must be brought to bear on the coronoid process.

Part xiii., p. 27.

Dislocation of the Thumb.—The case which directed M. Demarquay's attention to the subject, is the following: A lady, in leaving her carriage, fell upon the pavement with outstretched arms, and a dislocation of the thumb ensued. M. Demarquay thus describes the state of the part: The thumb was forced backward, and formed an obtuse angle with the corresponding metacarpal bone, whose phalangeal articulation projected under the muscles of the thumb. The ungual phalanx was flexed, and all attempts of further flexion or extension were impossible. M. Demarquay used all known means of reduction without success, and M. Roux resorted to muscular section. The latter surgeon used the same tractions as had before been done; but before flexing the thumb he rotated it inward, whilst he made forcible flexion, and reduction was thus obtained.

M. Demarquay was struck with this result; he made several experiments on the subject, and found that in a complete luxation of the thumb backward, the following changes take place: The metacarpal extremity of the first phalanx comes to rest on the posterior portion of the articular surface of the first metacarpal bone; and the phalangeal extremity of the latter projects under the skin, after having passed through the two portions of the flexor brevis pollicis, the external portion being frequently torn. This phalangeal extremity of the first metacarpal bone is then caught in a loop formed externally by the outer part of the flexor brevis and the abductor, and internally by the inner portion of the flexor brevis, the abductor pollicis, and the strong tendon of the flexor longus pollicis.

M. Demarquay gives the following rules: 1. To use a sufficient amount of traction (with Charrière's forceps) on the luxated bone, in the direction of the axis of the thumb. 2. To push back with the operator's thumb, or left index-finger, the head of the metacarpal bone, and keep it quite steady, so that when flexion is made, the head may not be thrust further into the palm of the hand. 3. When extension is carried to a sufficient extent, rotation either toward the outer or inner side should be made, so that the head of the metacarpal bone may be freed from the muscular loop which is keeping it strangulated. This being done, the traction should be continued until the posterior part of the first phalanx has reached the level of the head of the metacarpal bone. Flexion is then to be made, whilst at the same time the left thumb of the operator forces backward the displaced part of the first metacarpal bone.

Part xxv., p. 156.

Humerus, Dislocations of.—In whatever direction extension is made, whether downward and outward, directly outward or upward, you must fix the scapula, not by the heel in the axilla, but by the direct application of the counter force against the acromion process.

Part xxxii., p. 122.

Femur Dislocations of.—Let the operator stand on the injured side, seize the ankle with one hand and the knee with the other, then flex the leg on the thigh, next strongly abduct it, carrying it over the sound one, and at the same time upward over the pelvis, by a semicircular sweep, as high as the umbilicus; then abduct the knee gently, turn the toes outward, and carry the foot across the opposite sound limb, making gentle oscillations of the thigh, when the head of the bone will slip into its socket. Traction on the femur is force misapplied, it is unphilosophical and absurd, contra-indicated both by the anatomy of the joint and by the plainest laws of mechanics. As muscles are the principal agents in producing dislocations, so they may be made our most efficient assistants in reducing by manipulation; consequently "etherization to the extent of complete relaxation," instead of being an advantage, is a detriment.

Part xxxii., p. 120.

Dislocations of the Head of the Femur reduced by Manual Extension, Flexion, and Rotation.—The method of reduction by some American surgeons is to flex the leg on the thigh, carrying the thigh over the sound one, upward over the pelvis, as high as the umbilicus, and then abducting and rotating it. At Guy's, the method is not so violent. In dislocation into the foramen ovale, adjust a towel around the thigh just above the knee, give chloroform, and when all muscular irritability has ceased, place the heel against the head of the femur, and make extension in a line parallel with the central axis of the body; if the limb now be slightly rotated, the head of the femur will be replaced. In dislocation on the dorsum ilii, give chloroform, place the foot against the pubes, grasp the limb above the ankle, make direct extension, with gentle rotation outward, and the reduction will be accomplished.

Part xxxii., p. 131.

Reduction of a Dislocated Femur without Extension.—If on the dorsum, put the patient completely under chloroform; then take the thigh, flex it on the pelvis, bend it outward, and make a slight rotatory movement, when the head of the bone will slip into its socket. No extension whatever is required, simply lift up, bend out, roll in. Movements modified according to the different positions taken by the femur, are equally effectual with the other varieties of dislocation at the hip.

Part xxxii., p. 132.

Lower Jaw, Dislocation of.—The surgeon will obtain a great advantage in position, if, instead of standing before the patient, he stands behind. The head placed against his chest can be pushed forward at the time he is pushing the jaw downward and backward, with the thumbs in the mouth, and the fingers under the bone in front. By standing behind the patient, the head is more secure and fixed; he can also assist his manipulations by pushing forward with his chest, and, if necessary, employ much more force than when standing in front.

Part xxxii., p. 133.

Dislocation of Femur.—On looking at the limb from the side, the front outline of the thigh will present a concavity, instead of the curved prominence natural to it.

Another most useful diagnostic sign is the loss of support from behind to the femoral vessels. On pressing them with the finger, there appears a hollow behind them, and a deficiency of that firm support which they naturally possess.

The patient must be laid on the back and chloroformed. Then pass the front of the knee of the affected limb in your axilla, and pass the right hand under the thigh from within outward. With the left hand grasp firmly the upper part of the displaced bone, at the same time fix the left wrist in the right hand, you must now bind the thigh on the axis and rotate outward. By this the head will generally slip into the socket.

Part xxiv., p. 11.

*Dislocation of Humerus (old standing).—*You must first place the patient under the full influence of chloroform. You may dispense with the counter-extending girth around the chest, if you only fix the scapula. This may be done by a strong bandage placed like a soldier's belt across the shoulder, and meeting behind. This, by using strong force across the upper border of the scapula, at once fixes it. By careful manipulations and extensions, the head of the bone must now be directed into the glenoid cavity.

Part xxiv., p. 11.

Humerus Dislocation of.—In cases difficult of reduction, the following mode is worth having recourse to. Bandage a rectangular splint to the arm and forearm, so as to make the latter into a lever, by which to press upon the former. The operator's knee must be put under the patient's elbow as a fulcrum, the forearm must be depressed, and the bone slid into its place.

Part xxiv., p. 11.

Dislocation of the First Phalanx of the Thumb.—[In a case which occurred under his care, at Guy's Hospital, lately, Mr. Birkett saved the end of the protruding bone of the thumb, and closed the wound, which rapidly healed.]

The practice adopted in this instance, in treating the compound dislocation of the first phalanx of the thumb on the metacarpal bone, is the generally recommended—namely, to saw off the head of the phalanx before reduction; and it is a proceeding which answers admirably. So far as we could judge, the man would have a good movable thumb, with all its powers of flexion and extension.

Part xxxviii., p. 11.

Dislocation of the Thumb.—Mr. Humphrey finds the difficulty commonly experienced in reducing dislocations of the thumb to depend on the fact that the sesamoid bones or bodies are driven back with the displaced phalanx, and intervene between the articular surfaces, so as to prevent their coming in contact. In a case of compound dislocation of the distal phalanx, which had resisted attempts at reduction for more than an hour, he succeeded in quickly effecting the object by passing a probe beneath the sesamoid body, and tilting up its lower edge.

Part xxxix., p. 11.

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DIURESIS.

Diuresis.—The constant drain on the system deteriorates the health, so that this affection sometimes becomes very serious; frequently it ends in phthisis, or may first pass on to melituria. Tonics, as iron and quinine, must be freely given, along with opium or Dover's powder, and the diet maintained in every way possible. Belladonna may be given with some

in small doses, as in irritability of the bladder, with a view of controlling the irritability of the kidneys. *Part xl., 75.*

Diuresis of Irritable Bladder.—An interesting case of irritable bladder related, which had existed nearly a year and a half, and, as usual, was chiefly noticeable in the night, two or three times the natural amount of urine being passed, pale and insipid, but otherwise normal. Many other remedies had been tried without benefit. Extract of belladonna was then given, at first in doses of the twelfth of a grain gradually increased to the third of a grain, and ultimately a grain and a half was given during the day. The specific symptoms were then quite established—there were increased and dilated pupils. The irritability of the bladder was almost entirely subdued, and now, six months after, the patient remains perfectly free from any recurrence of her distressing complaint. The whole course of administration occupied rather more than six weeks. This is a disease which is chiefly met with amongst the upper classes of society, and seems to be in a great measure dependent on luxurious and enervating habits.

Part xl., p. 147.

DIURETICS.

Nitrate of Urea as a Diuretic.—In two cases reported by Mr. Kingdon, Musselburgh, he found that nitrate of urea acted as a very powerful diuretic, and reduced, in a comparatively short time, anasarcaous swellings long standing, when the ordinary diuretics had failed. In the first case he gave one grain of the nitrate of urea with one grain of calomel, in the form of a pill, every night and morning for twelve days, when the urine had become so copious for some days that the swelling disappeared. In the second case the urea was given alone, one grain and a half of the nitrate three times a day. The same success attended this treatment; as in ten days the anasarca disappeared.

Part x., p. 83.

Employment of Urea as a Diuretic.—[The operation of diuretics is well known to be remarkably uncertain, and in no cases more so than for removal of dropsical effusions. This was the cause of Dr. Tanner's employment of urea as a diuretic, forming, as it does, nearly half the solid constituents of the urine. Dr. Tanner observes:]

In whatever way urea is procured, it appears in the form of delicate silvery acicular crystals, which are seen by the microscope as four-sided prisms; they are colorless when pure, free from odor, and generally resembling nitre in appearance, possessing also a similar cooling saline taste. The crystals are soluble in their own weight of cold water, and in every proportion of hot, their solution being neither acid nor alkaline.

The preparation which I first employed was obtained from urine. It is, of course, unnecessary to say, that whether this agent be procured from nature, or prepared artificially, it ought to possess the same properties, and consequently be capable of producing the same effects. I might, however, remark, that I prefer the preparation obtained from the urine, my reason for this preference being, that in trying some experiments upon a dog, I found that the urea obtained from the cyanate of ammonia was less efficacious. It was unnecessary to resort to experiment to prove that urea medicin-

ally administered does not exert any deleterious or poisonous agency upon the system, because this had already been done by Dr. Todd. This gentleman injected half a drachm of urea into the vein of a dog, the only effect produced being an excessive secretion of urine, so that the place where the animal was kept was literally flooded in an hour or two by the frequency and quantity of his micturition. In the human subject a copious diuresis has been the only effect produced; in none of the cases in which I have employed it has it given rise to any unpleasant symptoms whatever. The ordinary dose, on its first being used, is ten grains every six hours, dissolved in water flavored with sirup; as its effects decrease, the dose may be augmented to a scruple or more. At the same time its action should be aided, as that of all diuretics should be, by the free administration of diluents, as well as by keeping the skin moderately cool. Boerhaave, the great medical luminary of the 17th century, first pointed out that many diuretics may be so administered as to prove sudorifics; and Dr. William Alexander taught that "the salt of tartar and of nitre, though among the most powerful diuretics, when taken with large quantities of warm liquids, if the body be well covered, prove excellent sudorifics, and do not increase the quantity of urine."

None deny the truth of these observations: I would only intimate that they are not sufficiently attended to.

In the first case, and the one in which I more particularly noted its effects, the quantity of urine secreted in the twenty-four hours previous to its administration was only fourteen ounces (high-colored, acid, sp. g. 1018) whereas, in the succeeding twenty-four hours, during which three doses of ten grains each were administered, the secretions amounted to forty-four ounces, (pale, acid, sp. g. 1013). The remedy was continued for the ensuing nine days, in doses of ten grains every six hours, during which period the urine varied in quantity from forty-nine to thirty-eight ounces. At the end of this time it was discontinued, as the dropsy had been temporarily removed; and, on again having recourse to it three weeks subsequently, its effects were as satisfactory. *Part xxv., p. 163.*

Cūnea Root.—The root of cūnea (*chiococca racemosa*) is highly extolled by M. Bruguiere, as a diuretic. *Vide Art. "Dropsy." Part xxxii., p. 32.*

Asparagus as a Diuretic.—The tincture of asparagus alone, in water, is a very valuable diuretic; but it is most useful in producing the diuretic properties of other drugs, directing them at once to the kidneys. Half a drachm to two drachms will produce copious diuresis. *Part xxxii., p. 106.*

Diuretic.—The "*erodium cicutarium*" or "stork's-bill," an indigenous plant growing in sandy places near the sea-side, possesses great diuretic properties, and may be advantageously employed in many cases of dropsy. The mode of preparation is to infuse an ounce of the dried plant (every part of it) in three pints of water, stewing it in an oven, until two pints remain. The dose for an adult is four or five fluid ounces, three times a day; probably more may be needed in some cases. *Part xl., p. 284.*

DROPSY.

Dropsy of the Synovial Membranes—Treatment by Tartar Emetic.—M. Gimelle has found the administration of tartar emetic in large doses

very efficacious in curing dropsy of the synovial membranes; causing complete absorption of the fluid, with abatement of all inflammatory symptoms, if any exists. Twenty-seven cases of dropsy of the joints have been treated successfully by him. He, without any previous treatment, commenced by giving four grains of tartar emetic in the twenty-four hours, and increased the dose by two grains every day, till from eighteen to twenty grains were taken daily. As soon as toleration of the medicine was established, the fluid began to be absorbed, and the cure was in general complete in from eight to sixteen days.

In only five of these cases was vomiting excited by the medicine, in two cases for three days. In eight cases it produced alvine evacuations; but its most general and constant effects were diminution of the strength and quickness of the pulse, weakness of the voice, abundant nocturnal perspirations, and the appearance of a dark circle around the eyes. In almost every case the appetite remained unimpaired. M. Gimelle regards this plan of treatment as the most successful ever yet proposed for the treatment of dropsy of the synovial membranes. *Part ii., p. 80.*

Dropsy of the Amnion—Curious Case of.—Since the publication of Mr. Toogood's case of dropsy of the amnion, it behooves us to be more cautious how we proceed in supposed cases of dropsy during pregnancy. Some writers on midwifery do not seem to be aware of the fact that dropsy of the amnion may so resemble ascites as to mislead even an experienced practitioner: but when Mr. Toogood's case is pointed out it will no doubt induce great caution in performing the operation of tapping. This patient was suffering from general dropsy and dyspnoea, to such a degree that tapping seemed absolutely necessary; "the abdomen was distended to the utmost: the fluctuation could not only be distinctly felt, but absolutely seen, the parietes of the abdomen had become so thin. Pregnancy having been ascertained, Mr. Toogood hesitated to tap her, and preferred bringing on premature labor, which he did by puncturing the membranes with a male catheter; two fetuses were expelled in due time with an immense quantity of water, ten or twelve quarts coming away with the second child. After this the abdomen completely subsided.

Part iv., p. 125.

Renal Dropsy—Use of Elaterium.—Dr. Clendinning advises a very judicious mode of administering it, viz.: in minute doses at intervals throughout the day, which is generally followed by copious evacuations, and the increased activity of the bowels is generally accompanied by corresponding activity of the kidneys and copious evacuations of urine. By steadily persevering in this treatment, a constant flux is maintained which soon exhausts the serous effusions.

Bleeding and diuretics are, in their way, of great value in such cases, but the removal of serum from the abdomen and albumen from the urine, must generally be accomplished by the use of elaterium.

It is well always between each day of purgation to have a refreshing night's rest; which is of course the more wholesome when natural, but if necessary, opium must be resorted to, to procure the necessary rest. The use of opium at night, not only procures the necessary sleep when nature will not allow it, but induces in the patient a much greater tolerance for the drug.

Part v., p. 54.

Paracentesis.—Various instruments have been invented for the evacuation of fluid from the chest. Mr. Snow makes use of an instrument which draws off any liquid, and at the same time prevents the transmission of air into the chest. "It consists of trocar and canula, with a stop cock in it; the trocar to pass through the open valve of the stop cock. A portion of the trocar must be made perfectly cylindrical, and to fit accurately the whole length of the canula. In withdrawing the trocar from the canula after their joint introduction, it must be brought so far as to be clear of the stop cock, which point is indicated by a mark on the trocar, and then the stop cock must be turned before the complete removal of the trocar. The portion of elastic tube must now be screwed to the canula; and to this tube must be screwed a double action syringe, with two distinct valves, like a stomach pump. The valve of the stop cock can now be re-opened, and by working the pump, the contents of the pleura, whether gaseous or fluid, will be withdrawn."

The grooved needle is also used by some practitioners to evacuate any fluid in the chest: Dr. Prichard of Bristol, uses a needle with a larger groove than in the common instrument, in ascites, and strongly recommends that both in this disease and in hydrothorax, it should be used much earlier than the trocar is generally recommended, being "persuaded that the practice of deferring paracentesis in ascites, till all other means have long been tried, is one principal cause of the frequent return of the effusion. Dr. Babington has invented a very ingenious instrument for these cases, which in some instances may be even superior to the grooved needle, through which fluid will at times flow with difficulty. It consists of a very small trocar and canula, which, together, are not thicker than an ordinary grooved needle, and a probe which would pass through the canula. It is very possible for the grooved needle to mislead the practitioner in his diagnosis in some cases, and especially in empyema, which is seldom a true effusion of pus, but only a puriform-looking liquid; "and the grooved needle often separates the serum from the small secretions of albumen, and causes empyema to be thought a simple serous effusion. Both these instruments, however, may easily be used, and with perfect safety to the patient. In one case in which it was used by Dr. Bird, no fluid escaped, and on passing the probe through the canula the lung could be felt distinctly, without any ill effects to the patient."

Part v., p. 111.

Iodine.—Dr. Stokes recommends it as a diuretic for pleuritic effusions and dropsies: "he advises the same rule to be observed with regard to it as with respect to other diuretics, which is to wait *until all inflammatory symptoms have subsided*. Iodine appears from what he says to be chiefly of use at the precise point where mercury begins to fail, which is when the disease has changed from its acute to its chronic form."

Part vi., p. 65.

Nature and Treatment of Dropsy.—With the views of Dr. O'Beirne as to the nature of dropsy, it follows that the *treatment* will consist in relieving the venous obstruction, and as this cannot easily be done by removing the pressure, we must relieve the distended veins by blood-letting; the immediate effects of the first bleeding are to relieve the absorbent system, and enable it to restore the effused serum to the circulating mass of blood, a proof of which we see in the sometimes rapid reduction in the swelling

and œdema of the external parts; but we ought to remember that the system is not reinvigorated by the absorption of serum in proportion to the previous debilitating effects which result from the loss of its fibrin and red globules—the blood-letting ought, therefore, to be proceeded with cautiously, and if necessary gin and water may be given at the same time. The bleeding may be repeated, when absorption and the secretion of urine become languid; but it will rarely be required to do so more than three or four times during the treatment, the interval between each bleeding being about two, three, or four days, so as not to induce debility; and for the same reason, the quantity of blood taken should be reduced in succession, from eight or ten to six, and from six to four ounces, the last being the smallest that can be of any decided benefit. The gin and water should be used in the proportion of one part of the former to four or five of the latter, and the gin should be Dutch, not English; this gin is selected on account of its well-known diuretic properties. If a case (of hydrothorax, for example) should occur in which the patient is evidently dying from difficulty of breathing, yet not comatose or paralyzed, the fluid should be partially evacuated, so as to relieve the symptoms, and wine and water, and every restorative means employed, and when absorption has gone on for a few hours, it is probable we might find a vein from which we might bleed, in the horizontal position. The venous obstruction would thus be relieved, and we might at the same time support the patient by animal food and the occasional use of gin and water. When this kind of case follows an attack of inflammation of the lungs, the animal food and spirit should be withheld for a few days, or longer, if necessary.

Part vi., p. 54.

Passive Dropsy—Treatment of.—As serous evacuations in the cure of dropsy pass off most frequently by the kidneys and intestines, M. Debreyne is of opinion that diuretics and purgatives employed to attain this end, ought to be combined; at the same time he recommends a dry diet, and that the patient should drink as little as possible. If the thirst is very urgent, it ought to be allayed by sucking oranges, grapes, citrons, etc. The following is the composition of what he calls his strong diuretic wine:

℞ Pulv. jalap, grammes viij.; pulv. scillæ, grammes viij.; nitratis potassæ, grammes xv. M.

These substances are to be macerated for twenty-four hours in a bottle and a quarter of white wine, and he directs a tablespoonful to be given three times a day; the dose is to be gradually increased until nine tablespoonfuls are taken daily. The stools, he says, ought never to exceed seven or eight per diem. If there is merely œdema of the lower extremities, he gives his weak diuretic wine, the ingredients of which are:

℞ Nitratis potassæ, grammes xij.; baccæ juniperi, grammes lx. M.

These are also allowed to remain for the same length of time in a similar quantity of wine, and the dose consists of a wineglassful three times a day. M. Debreyne by no means avers that these remedies are specific. They are only to be employed in passive dropsy, which cannot be cured by a rational treatment directed either to attack the cause of the disease, or one had recourse to with that view.

Part vii., p. 84.

Chronic Dropsies—Elder Bark.—The decoction and extract of this vegetable substance are reported to be remarkably efficacious as hydra-

gogues, producing a speedy effect on the urinary and fecal system. The proportions for the decoction consist of a couple of handfuls of bark to a quart of water; dose, a wineglassful a day. The cure administered in France in the form of pills, of one and a half grains each, of which from six to ten are taken in the twenty-four hours.

Part vii.

Ovarian Dropsy treated with Ioduret of Iron.—Case cited nearly four years previous, the patient had perceived something hard on the left side of the body, from which she occasionally suffered pain. The tumor continued to increase in size till it became enormous. She was much emaciated; countenance pale and anxious, breathing laborious, a short, tickling cough, pulse 145; abdomen so large that she hung the knees to a considerable extent; at the umbilicus was a tumor of an orange shape, and in appearance nearly transparent, at the centre of which were evident marks of ulceration taking place, in view to the outlet of the fluid. Mr. Tutin punctured the abdomen between the umbilicus and pubes. A large flannel bandage was put round the abdomen; she was ordered to keep perfectly quiet, and to use the following remedies:

Blue pill, three grains; powdered squill, two grains; powdered digitalis, one grain; opium, half a grain three times a day. With two or three spoonfuls of a diuretic mixture.

These she continued for three weeks without much benefit. He then ordered her to take fifteen drops of the compound tincture of iodine daily, and to rub the ointment of iodide of lead over the abdomen every day and morning.

But from this proceeding she obtained little or no relief. The tumor began to increase rapidly, and she was tapped a second time, taking out seventy-five pints. He now prescribed for her the ioduret of iron at half grain doses three times a day, and ordered her to continue the ointment. After repeated evacuations of the fluid, and the continued regular use of the ioduret of iron for nearly a year, the patient was restored to perfect health.

Part ix.

Hydrothorax and Hydropericardium.—When patients object to the use of Dr. Debreyne's diuretic wine, or when it appears to disagree with the stomach, we may have recourse to the use of the following pills.

R Pulv. digitalis, ʒiv.; pulv. scammoniae, ʒij.; pulv. scilla, ʒj. F. tract. Juniperi, q. s. Ut fiat massa in pil. cxv. dividenda. *Dose.*—From one to two pills three times a day, washing them down with three or four spoonfuls of white wine, in a bottle of which half an ounce of nitrate of potash has been dissolved.

Dr. D. says that he has found these pills especially serviceable in cases of hydrothorax and hydropericardium.

Part x.

Treatment of Dropsy with Croton Oil.—[In some cases of this affluence published by Dr. Fife, he found the croton oil much more useful than mercurium. The first case was a young woman 25 years of age, who had suffered from ascites between five and six years, and for which punctures had been frequently performed. She underwent the usual treatment, including elaterium, which was pushed to the utmost justifiable extent, without diminishing her size, which was ten feet in circumference at the umbilicus.]

bilious. Croton oil was now given at the suggestion of Mr. Handley, of Howden.]

The croton oil was commenced with in doses of three minims every night at bedtime, and had been taken a very few days when the tumor sensibly subsided, and became soft, instead of being, as formerly, as tense as a drum. The remedy was steadily and uninterruptedly given for at least ten or eleven weeks, and the swelling very rapidly diminished; pressure being at the same time made by means of a very broad bandage, which was constantly kept applied, its tightness being increased as the enlargement required. One remarkable fact connected with the continued employment of so harsh and drastic a purgative is, that it never, even when operating most powerfully, gave rise to any unpleasant symptom; but on the contrary, the patient daily improved both in health and appearance. The only complaint she ever made was of languor occasionally, when its action had been more severe than it generally was. In short, at no time was there either hypercatarrhsis or any dysenteric symptom present. As the quantity of fluid lessened, a tumor in the right iliac region became very distinct—evidently ovarian, and quite movable—in size equal to the mature fetal head. On the left side there is also enlargement of the ovary, though to a much smaller size.

This medicine has now been discontinued for many months, and no increase of fluid has ensued; the only medicine resorted to or required being gentle aperients, and this only to an extent infinitely less than requisite to many healthy persons. Her greatest circumference in the same situation as above-mentioned, and at a lower point where the projection is now greater, is no more than three feet. The diminution of size is, therefore, not less than seven feet.

Part x., p. 80.

Ascites—Use of Arsenic.—Dr. Cormack believes that when ascites depends upon hepatic or splenic congestion, much benefit will be obtained from the administration of small doses of arsenic. He recommends that the dose should not at first exceed the 16th or 20th part of a grain; that this should be taken in not less than four ounces of water, and with an empty stomach. The dose should be repeated four or six times—not seldom—in twenty-four hours. In skin diseases, intermittent fevers, enlarged spleen from intermittent fever, and, indeed, in every case in which arsenic is known to have specific effects, Dr. C. recommends that it should be given in the method above mentioned, and advises that all other drugs should, if at all possible, be suspended during its administration. In old cases of enlarged spleen and liver, the cure will be hastened by the use of a succession of blisters.

Part xi., p. 105.

Dropsy from Rheumatic Heart Disease cured by Elaterium.—A woman, aged thirty-eight, consulted Dr. Turnbull for cough and dyspnoea, with swelling of the face and legs. She had had an attack of rheumatism a few months before, since which she has had shortness of breath and some slight palpitation. In the report of the case, Dr. T. says:

The pulse is 70, rather weak and small; impulse slightly increased; the first sound is heard over the lower part of the sternum, and is accompanied by a bellows-murmur, which is most distinct at the apex and toward the left side, but is also audible at the lower part of the sternum, and slightly at the base of the heart; there is a very evident pulsation in the veins of the neck on both sides; the pulsation is double; the first precedes the

pulse at the wrist, the second bears to the first a relation which may be compared to that between the first and second sounds of the heart. On applying the stethoscope over the internal jugular vein, two very peculiar sounds are heard, which seem to be caused by the interruption and pulsation, of the venous murmur, which would otherwise be continuous. For on pressing the vein higher up with the finger, the sounds are entirely prevented.

Diagnosis.—Insufficiency of the mitral and tricuspid valves.—Signs of hypertrophy, with dilatation.

Treatment.—R Elaterium, one-sixth of a grain; chloride of mercury, two grains; bitartrate of potass, one drachm; compound jalap powder, ten scruples. Make a powder, to be taken once or twice a day. R Compound camphor tincture, two ounces; oxymel of squills, two ounces; tincture of digitalis, two drachms. A teaspoonful of the mixture to be taken when the cough is troublesome.

The powders produced a full effect, purging and vomiting freely, and the swelling diminished considerably. Digitalis and iodide of potassium were then ordered in a diuretic mixture, by which all oedema was removed, and the frequency of the pulse diminished. The cough left her, and she was only liable to palpitation on great exertion.

The rheumatic attack, which here laid the foundation of valvular affection of the heart, caused the disease in the most insidious manner; and shows, therefore, the importance of examining the heart with the stethoscope in all cases of acute rheumatism. The existence of a bellows-murmur in the first sound, with its maximum of intensity at the apex, indicates mitral regurgitation; and it is probable, from the strength of the murmur, and the loudness of the first sound at the lower part of the sternum, that this had produced dilatation and hypertrophy of the cavities at the right side of the heart. The insufficiency of the tricuspid valve, indicated by the jugular pulsation, may have been occasioned by such dilatation, or may have been caused, in common with the mitral affection, by the rheumatic inflammation. The interruption of the venous murmur by the reflux of the blood in the veins, is worthy of notice. It is the first case in which I have observed this.

Part viii, p. 44

Dropsy with Albuminous Urine after Scarlatina.—[In this disease, the antiphlogistic treatment is the best in a majority of cases, whether we consider the presence of albumen in the urine symptomatic of Bright's disease, or of nephritis. The disease, however, may be partially subdued, and albumen still remain in the urine, with pallor of skin.]

When these symptoms survive all the others, the patient is falling into the anæmic state. The phenomena of anemia are quickly superadded, and if sought for, will generally be found. The blanched face will be accompanied by a similar condition of the velum palati and fauces. The appearance of the urine has generally indicated a mixture, more or less considerable, of the coloring matter of the blood. If nitric acid be added, the albuminous precipitate will carry this coloring matter with it to the bottom of the vessel.

The blood appears to undergo a gradual deterioration from the daily loss, and the indications are, therefore, 1st, to arrest this insidious drainage of the system; and, 2dly, to repair the anæmic state by the employment of chalybeates. The acetate of lead is the remedy which has fulfilled the first

indication. Two or three grains may be given thrice a day, with the addition of a little acetic acid and distilled water. To this remedy should succeed the iron, the best preparation of which, in this case, appeared to be the muriated tincture. It is often surprising the rapidity with which the symptoms will yield to this succession of remedies. *Part xiii., p. 123.*

Treatment of the Dropsy following Scarlatina.—We have described the dropsy as coming in two different ways. In the one its invasion was intense and sudden; in twenty-four hours the body was distended with fluid, there was high fever, and a tolerably full, but very rapid pulse, while the urinary secretion was almost entirely suppressed. In such cases free general venesection was found to be the most efficacious remedy, and it could the more easily be employed, as these intense attacks of dropsy usually supervened after the mildest forms of the exanthema, where the patient's strength was quite able to bear the loss of blood.

This was succeeded by the administration of a mixture of the nitrate of potass, liq. ammon. acet. and tart. antimon., in moderate doses every two hours, with calomel and compound jalap powder at night, and the latter repeated in large doses in the morning.

We occasionally had recourse to the treatment recommended by Dr. Golding Bird. The patient was kept in bed, wrapped in a large flannel bed-gown, hot baths were given every night, and he took the following mixture every four hours:

R Vin. antimon. potass. tartr. m. x., julep. ammon. acetat. oz. iij., syrup. papav. m. x.; with pulv. ipecac. comp. gr. iijss. and pulv. hydrarg. c. creta gr. v. every evening.

Elaterium and other drastic purgatives were likewise employed with success, as was also croton oil.

In the other form of dropsy, where the swelling came on gradually with but little fever, we had recourse to nearly similar treatment, only that venesection was not required. But sometimes most dangerous head symptoms unexpectedly supervened, or the respiratory organs were severely affected. Nothing was then found more efficacious than the free employment of drastic purgatives.

The favorite remedies of this kind were croton oil and elaterium, especially the latter. Whether the fluid had accumulated in the pericardium, the pleura, or the peritoneum, or whether it had invaded the cellular tissue throughout the body, elaterium, in doses of from one-twelfth to one-sixth of a grain every three or four hours, often brought about the most rapid and unlooked-for amendment. We saw one child who had been in the most dangerous condition from dropsical effusion and pneumonia, and who regained his health in three days from taking small and frequently repeated doses of elaterium, squills, and calomel. He was in the most debilitated condition before these remedies were given; but stimulants, chiefly gin and water, were freely administered during the operation of the drastic purgatives, and with the happiest effects.

Often when patients escaped the perils of the anasarca, they remained pale and lencephlegmatic, and seemed as though about to succumb to serofulous disease. Many did indeed suffer in this way, swellings formed in the joints, or abscesses burst in the neck, and discharged the matter so characteristic of serofula. Here the preparations of iron were of especial advantage, particularly the citrate and the iodide of that mineral. Lastly,

change of air was, as it ever is, after the exanthemata, peculiarly *beneficial* in restoring the patient to florid health.

We are not quite sure that diuretics were always useful in the dropsy; they seemed sometimes to increase the already existing congestion and irritation of the kidneys. Leeches applied over the situation of these organs seemed to succeed better. *Part xvi., p. 44.*

Buchu in Anasarca.—[An anonymous writer in the "Provincial Journal" says:]

In cases of general anasarca, consequent upon inflammatory affection as well as those dependent upon organic disease, I have of late years found more unequivocal benefit to be derived from the use of the "*diosma crenata*," than from any other single article of the *materia medica*. I have generally combined the fixed alkalis with it, and the form I prefer is:

R Infus. diosmæ, oz. viij.; sodæ bicarb., potassæ bicarb., potassæ nitratæ, ær. ij.; syr. aurant., dr. vj.; tinct. scillæ, dr. ij. M.

That kind, the leaves of which are long and linear, is, I think, to be preferred to the other, the leaves of which are lanceolate, although both possess diuretic properties to a marked extent. *Part xvii., p. 44.*

Treatment of Anasarca by Incisions.—M. Lombard advocates the use of incisions in cases of anasarca, and states that when ascites existed with anasarca, not only is the latter palliated or cured, but in many cases the former also disappears.

At an early period, make four or five deep incisions, a third of an inch in length, down to the fascia, in each leg: and keep the patient in an arm-chair near the fire, with the legs naked, and resting on cloths. When the serum has drained away, support the legs by a roller.

Part xviii., p. 44.

Diuretics in some Cases of Dropsy.—[Dr. Toogood relates the case of a man who had tertian ague, and was generally anasarcaous. After the ague had been cured by the use of bark, various purgatives and diuretics were administered for the anasarca, but without effect. Dr. T. tells us:]

As every variety of diuretic had been repeatedly and ineffectually tried, I despaired of his recovery, when it occurred to me that the late Dr. Parry, of Bath, had recommended the fresh squill in a variety of cases, which he stated to have been successful in his hands. Six grains of fresh squill, in infusion of gentian, three times a day, considerably increased the flow of urine in four days, and, by gradually augmenting the dose, he was emptied, and recovered perfectly. I may add that this medicine was given by Dr. Parry, in some cases, to the extent of thirty and forty grains a day, and that he often prescribed it in asthma, combined with almond emulsion, occasionally adding to each dose a few grains of powdered myrrh, with the best effects.

[Another case was that of an unmarried lady, fifty years old, whose feet became anasarcaous after exposure to cold. Notwithstanding the exhibition of various diuretics, especially squill and digitalis, the effusion increased, and extended to the abdomen, arms and face.]

In this stage of the disease, a consultation with Dr. Blackall was held, who recommended that the capsules of copaliba should be taken twice or three times a day, that the cream of tartar liquor should be drunk very

freely, and that she should use the vapor bath, beginning at 90°, and increasing it to 110° and upward, if it could be borne. A moderate diet was prescribed, with two or three glasses of hock daily. She rapidly improved under this judicious plan of treatment, and has continued free from any return of disease up to the present time. The urine was frequently tested during the progress of her recovery, and the coagulation gradually ceased, and ultimately disappeared entirely. *Part xviii., p. 52.*

Treatment of Dropsy.—Acute Inflammatory.—Apply leeches, or cup from the loins, and let the patient use the hot-air or warm bath. Give purgatives, especially such as cause watery evacuations: sudorifics, as liq. ammon. acet. in doses of half an ounce twice or thrice a day; and diuretics, as cream of tartar in doses of half a drachm or a drachm frequently during the day. Digitalis may be given, with due precautions, as may, also, decoction of broom; but irritating diuretics must be avoided. Mercury is unnecessary and injurious.

Following Scurlatina.—Give a warm bath every other day, or every day, or twice a day, if it does not depress too much; and give hydragogue purgatives, and unirritating diuretics, such as bitartrate of potash or liq. ammon. acet., especially the former. At the same time give nourishing food in such quantities as the patient can digest; or even stimulants—port wine, for instance. If under this treatment the affection does not yield in a few days, and especially if there is lithic acid or blood in the urine, take a little blood from the loins by leeching or cupping. If symptoms of head affection come on, apply free counter-irritation to the nape or scalp, by means of sinapisms followed by blisters. *Part xix., p. 20.*

Treatment of Dropsy by the Juice of the Fresh Root of the Elder.—Boerhaave, Gaubius, Sydenham and, more recently, Martin-Solon, have recommended the juice of the inner bark of the common elder (*sambucus nigra*) as of great efficacy in dropsies. M. Reue Vanoye strongly recommends, for the same purpose, the fresh juice of the root.

1. The fresh juice of the root of the elder may be administered in all serous accumulations and infiltrations, which require the use of drastics. 2. It generally acts with greater energy and rapidity than the most active purgatives. 3. There is no advantage in combining it with drastics or diuretics; its action is never more apparent than when used alone, and to the exclusion of other treatment. 4. The first doses ought to be pretty strong; when they cause vomiting, the use of the medicine must not be abandoned, but it ought to be suspended for some days, if the vomiting be continued and severe. It is rarely necessary to give more than from 120 to 150 grammes, by the mouth, in spoonfuls. 5. Occasionally, this juice cures dropsies when other means fail. 6. The dangers connected with its employment are not serious. *Part xix., p. 28.*

Case of Renal Dropsy produced by Copaiba.—[The patient was a man who was taking copaiba for a gonorrhoea; being anxious to get well soon, he took twice the quantity that was ordered:]

When he presented himself at the infirmary, his legs and thighs were œdematous, besides a little effusion into the abdomen. His urine was of a smoky color and very albuminous. He was cupped on the loins, and ordered a drachm of compound jalap powder twice a day, and a warm bath twice a week. This treatment was continued, though less vigorously until

the end of July, when he was discharged well. I have since repeatedly examined his urine, and always found it healthy. I may remark, that all the information elicited from him tends to show that the drug with which he over-dosed himself had produced the disease. He had none of the early symptoms of granular disease of the kidney, though for many years, when obliged to do extra work, he has been subject to *lumbago*. At that time there was no scarlet fever near his house, though it was very rife in other localities of the town, nor had he been exposed to wet and cold. It may not be unreasonable to suppose that copaiba, when not producing purgation, may cause, in some mysterious manner, so much disturbance in the renal capillaries, as to bring on, like the scarlet fever poison, renal dropsy.

Part xix., p. 113.

Dropsy following Scarlatina.—Give a brisk purgative, and follow it by the liberal use of antimony, and the antiphlogistic regimen. In some cases leeches may be applied over the region of the kidneys. *Part xx., p. 28.*

Dropsy following Scarlatina.—Let a flannel dress be worn, the warm bath be used occasionally, and antiphlogistic treatment employed. In the advanced stages, give tinct. ferri sesquichlor. *Part xx., p. 31.*

Treatment of the Nephritic Dropsy which follows Scarlatina.—Give mild diuretic salts, as the acetates of potash and soda, with spirit of nitric ether; and use warm baths, and let the skin be rubbed with oil of turpentine. Take especial care that the child is kept wrapped in flannel, and in a warm atmosphere. If the child continues pale and weakly for some time, give iron, and recommend change of air. In severer cases, from six to ten leeches must be repeatedly applied to the lumbar regions.

Part xx., p. 33.

Colchicum in Dropsy.—Give wine of colchicum, beginning with \mathfrak{ss} daily, and increasing the dose by about mxx daily. When thus given, it is a powerful hydragogue. *Part xx., p. 168.*

Dropsy—Ascites.—When there are no inflammatory symptoms, and the legs have not become œdematous, methodical compression may be used with the greatest advantage; and it will often be found that diuretics, though previously given in vain, will act beneficially as soon as the employment of compression is adopted.

When considerable ascites occurs with general dropsy, from a watery condition of the blood, and there are no evidences of inflammatory action, give small doses of sulphate of iron with sulphuric acid. It will both act as an unstimulating diuretic, and improve the condition of the blood.

This "martial lemonade" is formed by dissolving six grains of sulphate of iron in a pound and a half of water, sweetened with an ounce of syrup, and adding a drachm of sulphuric acid—the period and continuance of its administration, and the dose in which it is given, being regulated by the practitioner, according to the exigencies of the case. Its use is contra-indicated in those cases in which the tongue is red and glazed, or has prominent papillæ, and when a certain amount of febrile action indicates the presence of thoracic inflammation or of hepatic peritonitis.

Part xxi., p. 32.

Ascites.—Dr. Todd lays great stress on the success which has followed the treatment of numerous cases of ascites from pressure on the abdomen, by means of strapping and bandages. *Part xxii., p. 158.*

Treatment of Ascites by Diuretics applied Externally.—At the suggestion of a French journal, it has been found that, after all other means have failed, the application of diuretics locally, remove the fluid of ascites. A mixture of equal parts of tincture of digitalis, tincture of squill, and tincture of soap, was rubbed freely and diligently into the skin of the belly, morning and evening. A copious flow of urine soon took place, and in fourteen days the ascites had entirely disappeared. In another case, where the liniment could not be used, Dr. Duncan applied linen cloths, soaked in the pharmaceutical infusion of digitalis, with perfect success. The infusion may be applied by means of the spongio-pilino.

Part xxii., p. 161.

Dropsy.—In a case of general anasarca, with ascites, after all other remedies had failed, the patient was cured by the following liniment being applied three times a day to one-half the surface of the body: R Volatile liniment, two parts; tincture of cantharides, tincture of colchicum, tincture of digitalis, tincture of iodine, of each one part. The patient recovered in a few days.

Part xxiv., p. 333.

Colchicum in Dropsy.—In dropsy succeeding to scarlatina, Dr. MacLagan frequently found colchicum of much service, especially in cases where the urine is much suppressed, and where comatose symptoms are present. The accession of coma may easily be ascribed to the accumulation of urea in the blood; and the power which has been shown that colchicum possesses of replacing the urea in natural, and often superabundant, amount in the urine, seems to point it out as a useful remedy in this and other diseases in which suppression of urine and coma co-exist.

He says, in a case of scarlatina, where the urine was totally suppressed, and the symptoms of coma were present, the *acetic extract of colchicum* was used with complete success. Diluents and ordinary diuretics were freely employed when the case was first seen, with the effect of causing a slight secretion of urine of low specific gravity. I believe, in all cases where albumen and urea appear to be vicarious, and where coma supervenes, evidently from the accumulation of the latter principle in the blood, that colchicum will prove to others of as great service as it has already done in the small experience I have had of it.

Part xxv., p. 41.

Ascites.—Whenever ascites is complicated with gastro-intestinal irritation, and where digitalis cannot be administered internally, the decoction applied as a fomentation acts as a most powerful diuretic, and may be used with great success.

Part xxvii., p. 48.

Acute Renal Dropsy.—In commenting on the treatment Dr. Budd remarks that the first thing is to relieve the inflammatory or congested conditions of the kidney, and that the best means of doing this are:

1. General bleeding or cupping on the loins; or, if the patient cannot well bear the loss of blood, large mustard-poultices applied daily to the loins, for the sake of drawing the blood to the surface.

2. Compound jalap powder, or some other purgative of like action, in full doses, so as to cause copious watery discharges. These not only relieve congestion of the kidney, but probably serve to eliminate through the bowels noxious matters in the blood, which must always exist when the action of the kidneys is very defective, and which, indeed, sometimes exist previously, and conspire, with the influence of cold and wet, to pro-

duces the inflammatory or congested condition of the kidney in which disease consists. No purgative is more generally suited for such a purpose than the compound jalap powder, and it is best given in a single dose sufficient for the object desired, in the morning before breakfast. Thus, in addition to the drain it causes from the mucous membrane, only a small amount is swept away from the bowels; whereas, if it be given during the course of the day, it sweeps away food which the stomach has had some trouble to digest, but the nutritious elements of which are not yet absorbed.

3. After the congestion of the kidneys has been somewhat relieved by these active measures, it may be further much lessened by promoting perspiration. Suppressed action of the kidneys, by the influence of cold and wet, seems to be a frequent exciting cause of acute and renal dropsy, and afflux of blood to the extended surface of the skin and free perspiration greatly relieve the congestion of the kidneys. Perspiration may be promoted by warmth; by the liquor ammoniac acetatis, given alone, or in conjunction with ipecacuanha and camphor mixture; and, if need be, by an occasional hot-air bath.

4. A fourth means of relieving the kidneys is by keeping the patient strictly confined to bed. The warmth of bed promotes perspiration, and the horizontal posture tends to relieve congestion of the kidneys by facilitating the return of blood from them, and by lessening the rate of the pulse.

Lastly, when the albumen ceases to pass through the kidney, and the patient will be getting anæmic, give the citrate or some other preparation of iron.

Part xxviii., p. 6.

Treatment of Dropsy.—Dr. Toogood gives us the practice of Mr. Dawkins in the treatment of dropsy. He says:

"During my pupillage I have often seen patients who consulted him with bloated and livid countenances, oppressed breathing, cedematous extremities, and other symptoms of great obstructions, with greatly diminished secretion from the kidneys, so much relieved that they have continued well for many months together, and by the occasional repetition of the same treatment, have lived for years in comparative health. His plan was to give a dose containing eight grains of calomel, with the same quantity of jalap, and one grain of emetic tartar in the morning. The action acted violently on the stomach and bowels.

"During and after its operation he directed a little wine or other cordial; afterward the patient generally fell asleep, and woke relieved. He then prescribed three grains of powdered squills, with two of digitalis, every night for six successive nights, and a mixture with bitter infusion, and small doses of tincture of squills and spirit of nitre, twice a day. The digitalis was then omitted, and the other medicines continued for six nights more; and if the symptoms were not much relieved, the digitalis was resumed again. If the case was unusually obstinate, the drastic dose was repeated, and sometimes the dose of the digitalis was increased from two to three grains. But this was rarely done; very little attention was paid to the origin or cause of the disease; the great object was to relieve the patient."

Part xxix., p. 6.

Dropsy.—Don't be afraid of giving diuretics in renal dropsy, as most practitioners are. You may give digitalis, squill, and bitartrate of potash.

either singly or combined, without materially increasing the irritation of the kidneys. You may give the seventy-fifth part of a grain of digitaline three times a day. This dose may seem small, but the tenth of a grain will kill a little dog. *Part xxxi., p. 101.*

Cainca Root in Scarlatinal Dropsy.—The root of Cainca (*chioscoca racemosa*) is highly extolled by M. Brugnier, as a diuretic; he warmly advocates its use in divers dropsies, but especially in that following scarlatina.

R Cainca root, bruised, ℥ij; water, ℥viij. Macerate for twenty-four hours, and boil: to be taken in three doses, at intervals of two hours. This decoction causes an extremely abundant flow of urine, causing micturition so frequently as even to interfere with sleep. *Part xxxii., p. 32.*

Diuretics in Renal Dropsy.—After having fallen into almost universal disuse, diuretics are again beginning to be prescribed in these cases; no other remedies effecting so much relief for the patient. The following is a very good formula: R Potassæ tartrat. 3ss.; spt. æther nitrici, 5ss.; aquæ piment., ℥j. Ft. haust. ter die sum. *Part xxxii., p. 106.*

Cellular Dropsy.—*Vide* Selections from Favorite Prescriptions, Art. "Medicines."

Ascites—Paracentesis Scroti.—In the advanced stage of ascites, the continued pressure of the water sometimes breaks down or elongates the fibrous and cellular tissues, about the cord, so as to open a communication between the abdomen and the tunica vaginalis, and enormously distend the scrotum. In such cases, where paracentesis is required, although tapping the abdomen is not dangerous, yet tapping the scrotum is much more simple and effectual. *Part xxxiii., p. 213.*

Hepatic Dropsy.—[In a clinical lecture on this subject, Dr. Burrows first noticed the symptoms which most commonly attend these cases. They may be briefly mentioned, as a swollen prominent abdomen, distinct fluctuation, sallow complexion, slightly jaundiced conjunctiva, pain and tenderness in the right hypochondrium, hard mass projecting below the ribs toward the umbilicus, high-colored scanty urine, slight fever. Most frequently these symptoms will have been produced by intemperate habits, which generally bring on cirrhosis of the liver.]

If there be pain in the right hypochondrium, a few ounces of blood may be taken, and followed by the application of a blister. Evacuate the intestines by a freely acting purgative, and repeat this once or twice a week. Having done this, you must bring the system gradually under the influence of mercury; to do this you may give pil. hydrarg. gr. iv. with pulv. scillæ gr. j., night and morning, and rub on the abdomen the lin. hydrarg. twice a day. You may place dependence on this treatment, but it will be necessary to sustain the mercurial action for several weeks. Diuretics may be employed freely, if careful analysis assure you the urine is free from albumen. The best diuretics are the salts of potash, combined with spt. æth. nit. and spt. juniper co. If these have not a very sensible effect in diminishing the ascites in the course of three or four weeks, you must at once have recourse to tapping, before the internal organs become interfered with in their functions by pressure. Lastly, you must give dry nutritious food, with a small amount of some stimulus; as patients of this kind have generally been intemperate, they will not bear low diet. *Part xxxiv., p. 106.*

effect upon the absorbents than by its mere cathartic power. given daily in one minim doses for weeks together with the most beneficial results.

Part I

Scarlatinal Dropsy.—That purgative which acts most directly as a dragogue is the best adapted for use in the treatment of this disease. It must be one which at the same time is not followed by any violent exhaustion, or by any torpid reaction. The combination of calomel and cream of tartar is most admirably suited to these ends. Treatment of that pigmentary condition, made apparent by adding to the boiling urine, in combination with albumen, is of the greatest importance. The presence of much fatty matter in the casts of the urine, with the microscope, also indicates an advanced state of degeneration.

Part II

Ascites from Chronic Peritonitis.—This disease is especially common in young females. There is distinct fluctuation, emaciation, diarrhoea, and frequently hectic fever; in some cases tubercles of the lungs may be detected. In fact, the relations of the disease are decidedly with the strumous diathesis, and the treatment must be accordingly. Cod-liver oil must be given internally, and must form the basis of the treatment; at the same time sirup of iodide of iron advantageously administered, if there is no diarrhoea, and the mercurial ointment rubbed over the abdomen. Keep your patient as possible in the open air, and administer a nourishing but unspiced diet. If there is diarrhoea or abdominal pain, opiates with or without astringents must be given. In two cases out of thirty-six tapping was resorted to; in one it materially assisted the cure, in the other it afforded permanent relief.

Part III

Albuminous Anasarca.—Tannin is useful in all cases where it is necessary to arrest hemorrhages, to give tone to the organism, or to remove secretions. Tannin given in doses of ʒss. to ʒj. per diem will

with the exception of the head, be in vacuo, or nearly so. This is easily done by putting the body to be operated upon in a box that can be made air-tight. On the top a large syringe is placed which communicates with the interior. By elevating the piston of the syringe, a partial void is created, to fill up which the air of the atmosphere rushes into the lungs through the trachea, and distends the chest. Expiration is accomplished by depressing the piston.

Part ii., p. 127.

Suspended Animation—Remarkable Case of Recovery of.—A very remarkable case of recovery after suspended animation is related by Mr. Douglas, of Havre. The man was immersed about fourteen minutes, and respiration did not commence for eight and a half hours: there was not the slightest appearance of animation on his being brought into the hospital at Havre. The whole treatment consisted in the application of hot bags of sand round the body—lavements of hot water (to which was subsequently added spirits of turpentine and tincture of assafrida), and friction. Artificial respiration was tried, but not persisted in. The chief treatment, however, seems to have been by means of the most persevering friction, performed with dry flannel, by relays of four men every half hour; this was persisted in most indefatigably for eight hours and a half, when respiration commenced very feebly, followed in twenty-four hours by reaction to such a degree, that eight leeches were applied to the temples, and six ounces of blood taken from the arm. This slight depletion, however, caused so great a collapse, that it was necessary to have recourse to stimulants. Typhoid symptoms set in and continued for six weeks, but the man ultimately recovered. Dr. Todd reminds us that in these cases electricity is very valuable, when brought to bear on the medulla oblongata, which can easily be accomplished by means of the electro-dynamic machine, by placing one wire on the back of the neck and the other at the diaphragm. The value of the application of heat in all cases of suspended animation, has been of late very much questioned by several eminent physiologists. Dr. Edwards asserts that the progress of asphyxia is much more rapid at high than at low temperatures; and that when the body is heated artificially, or by exercise, it consumes more oxygen in proportion, and consequently requires a greater number of respirations; hence, if we wish the body to do with as little oxygen as possible till respiration is established, we ought to keep the surface cool, and not hot, as is usually done, in resuscitating drowned persons and still-born children. This theory, however, will require some modification, since the recent investigations of M. Liebig. In these cases, the mode of applying electricity may be varied. Leroy d'Etiolles employs galvano-puncture, by introducing a fine needle on each side, between the eighth and ninth ribs, until they reach the fibres of the diaphragm. He then establishes a galvanic current between the needles by means of a pile of twenty-five to thirty pairs of plates, an inch in diameter. The diaphragm is thus made to contract, and an inspiration is accomplished: the circle is then interrupted, when the diaphragm, urged by the weight of the abdominal viscera, and aided by gentle pressure made on the abdomen with the hand, returns to its former position, and an expiration is effected. In this way, the two respiratory acts are made to succeed each other, and regular respiration is reintroduced.

Part vii., p. 31.

Asphyxia from Drowning.—In another lecture Sir B. Brodie treats of

drowning (*vide* "Asphyxia from Strangulation"). Death takes place as if by strangulation; in both cases the "want of due oxygenation or decarbonization of the blood being the sole cause of the animal's destruction." After immersion, a deep expiration takes place, by which bubbles of air are expelled from the lungs. Then comes an ineffectual effort to inspire; but water does not enter, instead of air; spasm of the muscles of the larynx seeming to prevent this. The attempts to breathe are repeated several times, and after each attempt a small quantity of air is expelled from the mouth and nostrils, until the air-cells of the lungs are almost completely emptied. Then insensibility occurs, and convulsive actions of the muscles mark the instant when the brain begins to suffer from the influx of the dark-colored blood. Soon all motion ceases; save in the thorax, where the heart may be felt yet feebly pulsating. Perhaps some further ineffectual efforts at respiration are resumed, and then all is still. The interval between cessation of respiratory effort and cessation of the heart's action is brief in the case of strangulation; but it is still more brief in drowning. And the whole succession of events, in the latter case, succeeding rapidly, are complete within a very few minutes. Our author is firmly of opinion, that in cases of complete and uninterrupted submersion, life has never been retained after more than five or six minutes have elapsed under water. All stories to the contrary, he holds to be apocryphal.

The treatment of the drowned is similar to that of the strangled. If the removal from the water takes place before the diaphragm has ceased to act, respiration may be resumed naturally; if not, artificial inflation is to be employed. And at two periods such inflation may be necessary; first, during the short interval between the cessation of the natural efforts to respire and the cessation of the heart's action; second, when the patient lies in a state of stupor, in consequence of the injurious effects produced by transmission of dark-colored blood to the brain. During resuscitation, "it must be of importance to supply the waste of animal heat, by placing the patient in a warm temperature;" the warm bath forms a simple and convenient method of attaining this object; and it may produce another good effect, "by promoting the natural efforts to respire." Abstraction of blood is even of more doubtful propriety than in cases of strangulation. And there are other things which should not be done.

"We have been directed to employ friction of the surface of the body for the purpose of assisting the circulation of the blood; as if this could do any real good when the action of the heart is ceased; or as if it would not do actual harm by overloading (if I may be allowed to use such an expression) the right auricle and ventricle, when the action of the heart was still going on. The injection of tobacco, and the application of stimulants, belong to the same class of remedies which are either mischievous or useless, proposed formerly by those who did not know what to do, but who thought that they were expected to do something, but now rejected by a more enlightened physiology."

Part xiv., p. 71.

Artificial Respiration—New Method of.—Dr. Marshall Hall proposes the following:

The patient must be placed in the prone position, so that the tongue may fall forward, and leave the glottis patent; the body must then be turned fully on one side, and again slowly replaced on the stomach.

These movements must be made alternately, gently, and equably, *sixteen times in a minute*. When laid on the stomach, pressure is made on the thorax and abdomen, and expiration takes place; when turned on the side, pressure is removed, and inspiration follows; and thus respiration is efficiently performed, and this without bellows, syringe, or any apparatus, all of which are not only unnecessary but dangerous.

Part xxxiii., p. 90.

Restoration of Persons apparently Drowned, or Dead from Intense Cold—Royal Humane Society's Instructions—Cautions.—1. Lose no time in sending for medical assistance. 2. Avoid all rough usage. 3. Never hold up the body by the feet. 4. Nor roll the body on casks. 5. Nor rub the body with salt or spirits. 6. Nor inject tobacco-smoke nor infusion of tobacco. I. Convey the body carefully, on its face with the head and shoulders supported in a raised position, to the nearest house. II. Strip the body, and rub it dry; then wrap it in hot blankets, and place it in a warm bed in a warm chamber free from smoke. III. Wipe and cleanse the mouth and nostrils. IV. In order to restore the natural heat of the body, move a heated covered warming-pan over the back and spine. Put bladders or bottles of hot water, or heated bricks, to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet. Foment the body with hot flannels. Rub the body briskly with the hand; do not, however, suspend the use of the other means at the same time, but, if possible, immerse the body in a warm bath of blood-heat, or 100° of the thermometer, as this is preferable to the other means for restoring warmth. V. Volatile salts or hartshorn to be passed occasionally to and fro under the nostrils. VI. No more persons to be admitted into the room than are absolutely necessary.

If apparently Dead from intense Cold. Rub the body with snow, ice, or cold water.—Restore warmth by slow degrees, and after some time, if necessary, employ the means recommended for the apparently drowned. In these accidents it is highly dangerous to apply heat too early.

General Observations.—On the restoration of life, a teaspoonful of warm water should be given; and then if the power of swallowing be returned, small quantities of wine, or diluted brandy, warm. The patient should be kept in bed, and a disposition to sleep encouraged, except in cases of apoplexy, intoxication, coup de soleil. Great care is requisite to maintain the restored vital actions, and at the same time to prevent undue excitement.

The *Treatment* recommended by the Society to be persevered in for *three or four hours*, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, cases having come under notice of the Society of successful results even after five hours; and it is also absurd to suppose that a body must not be meddled with or removed without the previous permission of a coroner.

Part xxxvi., p. 258.

Treatment of the Drowned.—In one of the instances of longest submersion on record, the first signs of recovery followed the pouring 3ss. of *℞* cammon. aromat. into the nostrils, and thrusting a feather dipped in ammonia as far as it would go. Dr. Wistar declared that the most successful treatment consisted in stimulating enemata, suppositories of mustard and red pepper, and a plaster of these substances applied to the anus and perineum.

Part xxxvii., p. 308.

New Directions to Restore the apparently Drowned on the M. Hull Plan—Issued by the National Life-boat Institution.—1. Turn the patient instantly, on the spot, in the open air—exposing the face and neck to the breeze, except in severe weather.

2. *To Clear the Throat.*—Place the patient gently face down with one wrist under the forehead, in which position all fluids will pass by the mouth, and the tongue itself will fall forward, leaving the air into the windpipe free. Assist this operation by wiping and clearing the mouth.

If there be breathing—wait and watch; if not, or if it fail, then—

3. *To excite Respiration.*—Turn the patient well and instantly on the side, and—

4. Excite the nostrils with snuff, hartshorn, volatile salts, or the like with a feather, etc., and dash cold water on the face, previously warm.

If there be no success, lose not a moment, but instantly begin

5. *To Imitate Respiration.*—Replace the patient on the face, and supporting the chest well on a folded coat or other article of dress

6. Turn the body very gently on the side and a little beyond, and dash briskly on the face, alternately; repeating these measures alternately and perseveringly about fifteen times in the minute, at four seconds, occasionally varying the side.

[By placing the patient on the chest, its cavity is compressed by the weight of the body, and expiration takes place; when turned on the side this pressure is removed, and inspiration occurs.]

7. On each occasion that the body is replaced on the face, make, but efficient pressure, with brisk movement on the back between and below the shoulder-blades or bones, on each side, removing the pressure immediately before turning the body on the side.

[The first measure increases the expiration, the second commences inspiration.]

** The result is—respiration, or natural breathing; and, if not late—life.

8. After respiration has been restored, promote the warmth of the body by the application of hot flannels, bottles or bladders of hot water, and bricks, etc., to the pit of the stomach, the arm-pits, between the arms, and to the soles of the feet.

9. *To Induce Circulation and Warmth.*—During the whole time not cease to rub the limbs upward, with firm grasping pressure and energy, using handkerchiefs, flannels, etc.

[By this measure the blood is propelled along the veins toward the heart.]

10. Let the limbs be thus warmed and dried, and then clothed by bystanders supplying the requisite garments.

Cautions.—1. Send quickly for medical assistance, and for dry clothing.

2. Avoid all rough usage and turning the body on the face.

3. Under no circumstances hold up the body by the feet.

4. Nor roll the body on casks;

5. Nor rub the body with salts or spirits;

6. Nor inject tobacco-smoke, or infusion of tobacco.

7. Avoid the continuous warm bath.

8. Be particularly careful to prevent persons crowding around the body.

General Observations.—On the restoration of life, a teaspoonful of warm water should be given; and then, if the power of swallowing have returned, small quantities of wine, or brandy and warm water, or coffee. The patient should be kept in bed, and a disposition to sleep encouraged.

The treatment recommended should be persevered in for a considerable time, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, cases having been successfully treated after persevering several hours.

Part xxxviii., p. 299.

Asphyxia from Drowning—The Silvester Method.—This new method, according to its advocate, Dr. H. R. Silvester, possesses many advantages over the "ready method" of Marshall Hall; it is easy of performance, and may be employed along with those other means in which so much confidence has hitherto been placed. This plan of resuscitating the drowned is a simple imitation of natural deep inspiration. It is effected by lifting the ribs and sternum by means of the muscles passing from the shoulder to the chest, by steadily extending the arms up by the side of the patient's head. In this way the cavity of the chest is enlarged, a tendency to a vacuum is produced, and a rush of air immediately takes place into the lungs. Expiration is brought about by compressing the sides of the chest by the patient's arms. The patient must be placed on his back, with the shoulders raised, and the tongue drawn forward, whilst the arms are used as above directed, as handles to open and close the chest.

Part xxxviii., p. 300.

Resuscitating Persons apparently Drowned.—The advantages of the Silvester method, as compared with that of Marshall Hall's, as stated by its author, are the following, and may be thus studied in comparison:

MARSHALL HALL'S METHOD.

Expiration is made to precede inspiration—the reverse of the natural order. In still-born infants forced expiration, at first (as they have never breathed) is, of course, impossible.

The warm bath cannot be employed during its adoption.

When the patient is turned on the face (prone), and pressure made, the contents of the stomach are liable to pass into the œsophagus and trachea.

In the opposite position, "on the side, and a little beyond" (supine), the tongue is apt to obstruct inspiration by falling back into the throat.

Both sides of the chest are not equally inflated.

The amount of air respired is exceedingly small, the actual capacity of the chest not being enlarged (proved by experiment).

SILVESTER'S METHOD.

Inspiration may be made to precede expiration, or *vice versa*, at the will of the operator.

May be adopted when the patient is in the warm bath.

Contents of stomach not liable to pass into trachea.

Tongue effectually prevented from obstructing inspiration.

Both sides of the chest are equally inflated.

A larger amount of air is inspired than by any other method (proved by experiment).

Lastly, we are told, that whilst the Royal Humane Society directs its attention mainly to the circulation, and Dr. Marshall Hall chiefly to the respiration, the new method of Dr. Silvester combines the advantages of both.

Part xxxviii., p. 301.

DYSENTERY.

Epidemic Dysentery—Opium.—Dr. Robert Christison says:

I doubt whether Mr. Pereira's doctrine that "in *dysentery*, opium can only be used beneficially in the latter stages, and then with great caution" (*Mat. Med.* 1803, will be received at all as a general proposition. There is not a better way of treating an ordinary mild dysentery at the commencement, than by the familiar practice of alternate opiates and laxatives. But—what is more connected with the matter now chiefly under review—in severe epidemic dysentery, as it occurs at times in this country, where, when early begun, may be commonly trusted, if I may rely on my own experience, to opium alone—not used, however, "with great caution," but given boldly, and often.

Part iii., p. 10.

Chloride of Silver.—On the use of the *chloride of silver*, the following observations are made by Dr. Perry:

It must be universally acknowledged that the nitrate of silver administered by the mouth can never act as nitrate of silver on the system, since any dose which could be ventured upon must, immediately on entering the stomach, be converted into the chloride of silver, from the chloride of sodium of our food, or the hydrochloric acid of the gastric juice.

The chloride must then, *a priori*, be considered as efficacious equally with the nitrate, while it will be found less uncertain in its effects, more convenient for exhibition, less liable to decomposition, and free from the nauseous taste. It may be given, too, in any dose thought necessary to produce the alterative and tonic action of silver without danger.

In less doses than thirty grains, no irritating or manifest effects result. Thirty grains given at once will generally produce emesis. The best mode of exhibition is in pill. To children, it can be given as a powder suspended in syrup.

Twelve grains administered daily for three months have produced no unpleasant symptoms, and none of my numerous and long-continued courses of the remedy have been followed by discolorations of the skin.

In chronic dysentery, half a grain to three grains thrice daily, produce immediate diminution in the number of stools, and termina, with amelioration in the character of the stools and other symptoms.

I have not ventured to use it freely in acute dysentery, but in a few cases in which it had been administered, its effects seemed equally beneficial.

Part iv., p. 12.

Acute Tropical Dysentery—Treatment of.—[Dr. Lewins directs the reader's attention particularly to Dr. Hayn's treatment, in Java, which he witnessed during a residence there.]

His treatment consisted in administering, at the very outset of the disease, a scruple of the chloride of mercury. According to his experience, this powerful pharmaceutical agent, when employed in small doses acts as an irritant, but when given in large quantities, has so decided an immediate effect as to merit the name of a direct sedative. I have seen soldiers brought into hospital in the most severe agony, discharging mucus and blood at very short intervals, and laboring under the most aggravated form of the disease. On administering a scruple dose of

calomel, the most marked and gratifying amelioration took place. The tormina, tenesmus and diarrhœa almost instantaneously cease, a feeling of comfort takes the place of the most intense suffering, the countenance brightens up, the pulse, heat of tongue, and thirst, when present, are diminished, and, in short, all the distressing symptoms are much alleviated. This remission is, however, often followed by an exacerbation at the end of six or eight hours. Reaction is established, the pulse beginning to rise, and if no steps are taken to prevent it, the whole train of symptoms return with almost undiminished violence. If the diarrhœa and tenesmus come on, no hesitation need be felt in repeating the scruple dose of calomel, but, if the physician be on his guard, he may often prevent this, by active measures whenever the tormina and borborygmi are apparent. This is the critical moment, and a scruple of calomel divided into four doses, administered every three hours, will often prove sufficient to prevent reaction, and overcome the disease. If the malady be obstinate, five grains of calomel should be given boldly every three or four hours, and under this treatment the medical man will seldom be disappointed. When the bowels have been quiet for thirty-six hours, a scruple of the powder of rhubarb was found to be most serviceable. The stools which followed were fetid, dark colored, fluid, sometimes bloody, but voided with little or no pain. If symptoms of inflammation appeared in any of the abdominal viscera, which rarely happened, leeches were used; but a blister was almost invariably applied to act as a safeguard, and to relieve the remaining irritation in the intestines. Salivation comes on occasionally under this treatment, but is by no means necessary for the cure of the disease.

Great care is requisite in the treatment of dysentery, that the patient be confined to an equable temperature; and it may be remarked, that seamen on board ship are very severely affected by small doses of mercury, owing to the exposure to which they are necessarily subjected, from the dampness of the atmosphere, occasioned by the evaporation from the surface of the vast expanse of water by which they are surrounded, and possibly in some degree from the nature of their aliment.

Part iv., p. 71.

Camp Dysentery—Use of Creasote Injections.—[By "camp dysentery," Dr. Wilmott means the epidemic form which often proves so deadly a scourge in large communities.

Dr. W. made a post mortem examination of two fatal cases. In the first, there was injection and ecchymosis on the inner part of the ilium; the mucous membrane was so ulcerated that a mere tracery-work, like lace, was left of it. The cæcum also was ulcerated; but not the colon. In the second case, the rectum and last three inches of the colon were much ulcerated.]

Several cases had occurred. The most pressing was that of a man, æt. fifty-one, who was attacked on the 1st, and in whom the remedies, up to this day (the 11th), had been of little or no avail. He was greatly exhausted—had constant evacuations of blood, with shreddy matter; no fæces; the smell was putrid and gangrenous; hot turpentine fomentations were ordered to the belly, and, in addition, the author was led to try an injection composed of 5j. of creasote in 12 oz. of starch. He did not, he observes, use it empirically, but looking at the character of the fever, of

the slow nervous kind, the inertness of remedies introduced by the stomach, the little control exercised by medicines locally applied to the spasm of the gut, the local nature of the disease as shown by its effects on the bodies, the disposition to gangrene, as well as ulceration, and the septic and stimulant powers of creasote—these considerations induced me to try the remedy. On the 12th, the patient was rather better. The injection had caused a tingling sensation, but no pain. On the 13th and 14th days he gradually improved; and on the 18th the evacuations were again highly offensive, containing a quantity of hard scybala. No blood or shreds were passed. The turpentine had been applied four times, and the creasote injection used every night since the 11th. After this he soon came convalescent. In several other cases, either under the observation of the author or his friends, this remedy was used, and with evident success.

[In discussing the merits of the above remarks, Dr. Baly says that the value of calomel in dysentery is unequivocal. He was surprised to find that Dr. Willmott had found it of no service. In the epidemic dysentery which occurred in the Penitentiary in 1823, in combination with large doses of opium, it soon cut short the disease. He thinks that creasote might occasionally employed as an adjunct, but that so purely a local remedy could not of itself arrest inflammatory dysentery. In answer to a question by Mr. Lloyd, Dr. B. stated that when starch and opium injections failed, three or four ounces of warm black wash, with laudanum, had occasionally succeeded. When pytalism occurs after its use, Dr. B. attributes it to the calomel given at the same time. Dr. Burrows fully agreed with Dr. B. in his opinions. Dr. James Johnson had in no instance seen dysentery result from contagion. With Dr. Baly, he believed, when epidemic, it depended on atmospheric causes. The use of calomel and opium in the recumbent posture, and anodyne injections, he had found most generally attended with success. Calomel and opium was our sheet anchor in all climates. Recovery usually followed the production of pytalism. He had lately used tannin with much success in this disease. It had the advantage of being less irritating than creasote, was a powerful astringent, and could be easily injected into the bowels.]

Part xiii. p. 1.

Ergot of Rye in Dysentery.—[After using the ordinary remedies in the treatment of a case of dysentery, without any benefit to his patient, Mr. Gervis resolved upon giving the ergot of rye, in conjunction with tinct. of iron, which he did, as follows:]

Battley's solution of secale, one drachm; tincture of sesquichloride of iron, one drachm; water six ounces. Mix, and give a quarter part every four hours. After the first mixture had been taken, I found a visible improvement had taken place. The ergot had produced slight pains in the bowels; but after she had taken three of the above mixtures, the bloody discharge and other symptoms had entirely ceased. There was no return of the complaint after this period.

The properties of ergot are invaluable in cases of hemorrhage arising in other parts of the body; and in a severe case I lately had under my care, in a young man, of hemorrhage from the urethra, which continued for days, I found that the ergot with the steel mixture succeeded effectually.

Part xiv. p. 1.

Treatment of—Acute.—If there is tenderness of the abdomen, or if other symptoms indicate inflammation of the large bowel, apply 12

and repeat them as often as necessary. Give calomel, gr. iij., one-third to a half every four or six hours until the active symptoms are subdued, or the system is under the influence of mercury; if the bowels irritates, give hyd. c. creta and Dover's powder instead. Give astringents; ol. ricin. ʒj ʒiij. especially if the stools are not feculent. Chronic.—Give astringents: opium, catechu, and ferri sulph.; but not to an extent as to constipate. If there is great tenesmus, give a few drops of black wash and a drachm of laudanum, *per ano*: and when the retention of the lower bowel is purulent, inject a weak solution of sulphate of zinc.

Part xv., p. 109.

Employment of Matico in Malignant Dysentery.—[Dr. Hartle has communicated some cases of epidemic dysentery with intestinal hemorrhage, which he has successfully treated with *matico*. The cases occurred in Trinidad, West Indies. Dr. H. says:]

The disease was ushered in with pyrexia, and the most malignant concomitant symptoms of the malady, accompanied by profuse hemorrhage from the bowels, with extreme relaxation of the sphincter ani. In some of the cases tenesmus was distressing, while in others there was no whatever; yet in all, the blood was constantly streaming from the rectum, while the anus was extensively dilated. The Spaniards, aborigines of this island, call this disease, where it assumes such a malignant type, with dilated anus, "bisheo;" and they solely depend, as a restorative, on the use of lime-juice, taken as lemonade, *ad libitum*, clysters of lime-juice and water, baths of the same, and the dilated anus is plugged with a line which is nicely peeled, then cut round from the core, inverted and introduced into the rectum. No inconvenience, pain, or difficulty, attends the introduction of the line, for the sphincter ani appears to have lost all sensibility and power of contracting; for as fast as the one plug is ejected another is immediately introduced.

The first patient I had suffering under this malignant type, was a youth, seven years old. My preliminary treatment consisted in clearing out the prime viæ with an infusion of radix ipecacuanhæ, and immediately after I commenced the lime-juice treatment (until I could obtain my *matico* from the vessel), which I persevered in until the fifth day, when finding my little patient was losing ground, that the hemorrhage was increasing, and that the dilatation of the rectum was more alarming, I instantly commenced with an infusion of the *matico* (one ounce to the pint of boiling-rainwater), and gave a tablespoonful every third hour, and a clyster of the same infusion one hour after he had taken each dose of the infusion. His recovery was rapid.

(Dr. Hartle treated every case which came under his care with the same medicine, and he reports that it proved successful in every instance.

Part xv., p. 112.

Use of Astringents in Dysentery.—Astringents given by the mouth are very useful in controlling the profuse diarrhea that accompanies chronic dysentery. I have tried the vegetable and mineral medicines of this class upon a large scale, and have decidedly found more benefit from the decoction of logwood, in conjunction with laudanum, as recommended by Dr. Stokes, than from all others put together. Astringent enemata also produce a very good effect in cases where there are profuse discharges without pain. I have tried them composed of acetate of lead, nitrate of silver, etc.,

and have seen more good done by enemata of sulphate of alum with tincture of opium, than any others: and Dr. Parkes, in his remarks on the hepatitis and dysentery of India, says: "That in the adynamic form, when combined with catechu and camphor, is the best treatment."

Part xviii., p. 124

The Dysentery lately Epidemic in Dublin.—This epidemic appeared in two forms. In one, which Dr. Mayne terms the *acute* variety, the disease, though if neglected or mismanaged it became chronic or terminated fatally, yet, at the first, yielded readily to active treatment: while the *second* variety, which he terms *chronic*, was from the first complicated and unmanageable, and generally ended in death. In the present paper Dr. Mayne treats only of the *acute* dysentery.

The treatment which proved most successful may be summed up in a few words: dissection showed that the disease consisted essentially in a severe inflammation of the large intestine, tending rapidly to ulceration, and sometimes even producing the death of the structures implicated; and, from its pathology, it usually yielded to mercury and other antiphlogistic measures, *when this line of treatment was employed sufficiently early.*

Venesection was practised with the best results whenever the patient was young and vigorous, and came under treatment in good time; but in the vast majority of the workhouse cases, local detraction of blood was the only mode of depletion practicable; this was best effected by leeching the verge of the anus repeatedly, greater relief being obtained from ten leeches so applied, than from triple the number placed upon the abdomen: the hemorrhoidal veins were in this manner most effectually unloaded, and at the same time the distressing tormina and tenesmus were with great certainty mitigated.

Mercury, however, must be considered the principal remedy.

As in other acute inflammations, the good effects of the mercurial treatment are sometimes first perceived simultaneously with its action upon the gums, but very constantly it produces a cure before any symptoms of salivation arise; so that a daily inspection of the evacuations alone enables the physician to determine when the remedy ought to be discontinued.

The beneficial influence of the mercury is first recognized by the appearance of true fecal matter in quantity in the stools, accompanied by marked relief to the general uneasiness, and a decided decrease of the dysenteric discharges. As soon as the natural secretions are fairly restored, the mercurial treatment may be safely laid aside, irrespective of the condition of the mouth.

Next to mercury, alkaline medicines appeared to exert the most beneficial influence in acute dysentery. Unaided by mercury, their power to control the disease is but feeble, nor ought they ever to be depended upon as a substitute for mercury, when the complaint is recent and the patient's constitution healthy; but when the evacuations have resumed a bloody color, under the influence of mercury, the stools still continuing too frequent and too fluid; or when mercury has fairly affected the mouth, without improving the stools or materially alleviating the distress; or when the constitution is too feeble, or the dysentery too chronic, to afford reasonable expectation of success from the employment of mercury, the most remarkable benefit is sometimes obtained from this class of remedies.

[Astringents were found only to aggravate the disease; so likewise

all doses of opium. Smaller doses of opium, especially in the form of Dover's powder combined with the mercury, seemed to relieve pain without exercising any injurious influence. When the active symptoms had subsided, there was often a tendency to scybalous stools; under these circumstances, the most effectual remedy was a draught containing one drachm of castor oil with twenty drops of oil of turpentine, given every three or four hours till the bowels were unloaded. With these were also combined astringent injections containing acetate of lead. When a relapse occurred, oil of turpentine was the most powerful remedy.

Part xix., p. 304.

Dysentery in the Course of Fever.—Give oil of turpentine in doses of six or eight minims, in the form of emulsion; or Chio turpentine in pills.

Part xx., p. 23.

Tropical—Treatment of.—In acute tropical dysentery, give daily enemata of tepid water—four to six pints—by means of O'Beirne's elastic tube, introduced beyond the sigmoid flexure. This soothes the inflamed parts, and gradually softens and brings away the mass of hardened feces which usually fills the large bowel in this disease. After the intestine has been freely cleared of the fecal matter, the tube need not be introduced so far. Free venesection will often be required in acute dysentery. In the chronic dysentery, employ astringent injections, such as fifteen grains of nitrate of silver dissolved in two or three pints of water, or a mixture of catechu and chalk, or a strong decoction of bark; taking great care to wash out the bowels with a large enema of tepid water (as above described) every day, before giving the astringent injections. Or, conjointly with the warm water enemata, astringent medicines may be given by the mouth. Leeches will often be required; but very seldom mercury, except in the form of ointment.

Part xx., p. 88.

Treatment of Dysentery by Acetate of Lead.—[If there is much symptomatic fever, with full, frequent, especially hard pulse, and the patient possesses an ordinary constitution, Dr. Batchelder places blood-letting at the head of the treatment. The next remedy is the acetate of lead and opium. This remedy should be given immediately after the bleeding; or immediately, whether venesection has been employed or not.]

It is best that this dose should be sufficiently large and powerful to stop and effectually control the disease for the time being. It should consist of at least two grains of opium and four of the acetate—the patient being an adult, make the following prescription: R Opium, 6 grs.; acetate of lead, 12 grs. Mix intimately and divide into six equal parts—one, two, or three to be given at once, according to the severity of the symptoms. After an hour, if the discharges have not ceased, another is to be given; and if they still continue, another, perhaps two, as the case may require, after each discharge, without regard to time.

By giving at first a large, or what might be deemed by some an over-dose, we may cure the disease at once, as by a blow; but if we fail in this, we are pretty sure to get, and are enabled to maintain, a perfect control over it in all its subsequent stages.

When the discharges have been suspended some twenty-four, thirty-six, or forty-eight hours, a gentle laxative, as rhubarb and magnesia, or castor

oil, with or without purgative, may be ordered, especially if the patient feel a sense of fullness in the abdomen, or indeed any other sensation which he thinks would be relieved by an evacuation from the bowels. When the bowels have responded some two or three times to the last motion, manifest a tendency to continue their movements, another powder may be given after the third motion, or after the second, if there be a plainly indicated renewal of diseased action, in which case the dose may be repeated after each succeeding discharge.

When the disease has been arrested in the manner described, it may be often left entirely to nature, *i. e.*, without even recourse to a laxative. When this has been withheld, the first motion from the bowels is generally natural, or nearly so, and the patient convalescent. Admission of gentian or some mild tonic completes the cure.

In the complications of fever with dysenteric symptoms, the writer's experience has led him to believe that the acetate of lead and opium, as recommended in this paper, is the remedy which in such cases affords the most certain relief by correcting morbid secretions and controlling the normal action.

The acetate of lead in solution applied topically to an inflamed part, all know acts "as a sedative, astringent, and desiccative," from which properties its utility as an enema in dysentery has been inferred. When applied to the inflamed mucous membrane of the rectum, it seems to be the most appropriate remedy. If it has failed to produce the expected effect, or has aggravated the symptoms, it is in consequence of having been improperly used. If too strong, it will irritate the inflamed gut by its local properties, and do quite as much harm as when the quantity is large. The following proportions, it is believed, will be found to suit most cases: *R* Acetate of lead, 6 grs.; pure water, 1 oz.; to be given from 30 to 50 drops. Mix for an enema—to be given according to the frequency of the discharges, and retained as long as possible.

The recumbent posture should be most authoritatively enjoined, and rigidly insisted on—from it the patient should not be allowed to depart, not even during a discharge from the bowels.

In addition to the recumbent posture, the writer is in the habit of insisting, in severe cases, or those in which the tenesmus is very harassing, that the difficulty of repressing or resisting it great, that the pelvis should be raised by putting a pillow or two underneath the hips.

We have found cholera infantum more effectually and certainly cured by the acetate of lead and opium, than by any other means or remedies with which we are acquainted. To an infant, six months old, affected with this disease, we give one-twelfth of a grain of opium with one-sixth of a grain of the acetate after each discharge, up or down, more or less, or more according to circumstances.

Part xxiv., p. 1.

Dysentery.—In Ceylon it commonly appears as colonitis. To support the patient from the first, depleting, however, by leeches applied to the abdomen; then Dover's powder and ipecacuanha, three grains each, third hour, and afterward these combined with astringents. Quinine combined with these remedies, twelve or sixteen grains being given in twenty-four hours. Nitrate of silver injections thrown into the colon sometimes very beneficial.

Part xxviii., p. 1.

Treatment of Chronic Dysentery.—In dysentery the large intestines and the parts principally affected. When the functions of the colon are reformed in a healthy manner, the fæces are properly formed; but in dysentery, this character of the fæces is lost, owing to some fault of the colon.

The compound tincture of benzoin is particularly useful in restoring the action of function of the colon. Twenty drops may be given on sugar three or four times a day.

Part xxxiv., p. 101.

Dysentery—Cholera.—Administer per anum a tablespoonful of common virgated charcoal, rubbed up with the white of an egg, which may be diffused in eight or ten ounces of chicken broth. This is often followed by perfect relief to the local symptoms, and consequently to the general disorder. For this purpose, charcoal is deteriorated by exposure to the air, and probably that made from willow cork or sponge will be found most efficacious. In cholera, it is most beneficial at the commencement of the attack, but in all stages it is a beneficial adjuvant.

Part xxxv., p. 26.

Idiopathic Dysentery treated by Bismuth and Astringents.—Give a mixture consisting of a scruple of bismuth, ten grains of compound powder of kino, two drachms of mucilage, and an ounce of infusion of Krameria, every six hours; at the same time attend carefully to the diet. Bismuth is also specially recommended in the diarrhœa of phthisis, typhoid fever, and of children.

Part xxxv., p. 59.

Dysentery.—In subacute and chronic dysentery confine the patient to bed, and in the recumbent position, that the bowels may be supported and kept quiet, and unirritated by the action of the abdominal muscles. Milk and farinaceous food are most applicable, as least stimulating peristaltic action, and being most likely to be assimilated. In the subacute and severer dysentery of this country no remedy is equal to Dover's powder in ten grain doses, with an occasional dose of castor oil, guarded by a few drops of laudanum, for the removal of fecal matter. If there be a deficiency of bile, give a little hydr. c. cretâ; if there be much pain or tenderness apply a few leeches to the anus. In acute cases confined to the rectum, medicines administered by the mouth do little or no good; here give soothing injections with opium.

In the purely chronic form of the disease, the treatment consists in the administration of mineral and vegetable astringents, combined with opium, occasionally using aperients for the removal of fæces and foul secretions. When the ulceration is confined to the rectum or lower extremity of the colon, astringent injections of acetate of lead, nitrate of silver, sulphate of zinc, and gallic acid, will be most serviceable. But when the ulceration extends more or less throughout the entire extent of the colon, remedies administered by the mouth, especially the mineral astringents, act most effectually. In these cases slips of blistering plaster should be frequently applied. In the more advanced stages of the disease, and in the milder cases where we have a healing but lax state of membrane, the stools being bilious and containing but little blood or mucus, the vegetable astringents will answer best. A strong decoction of the *Ægle Marmelos*, or Bael-fruit of Bengal, is very useful. A few drops of laudanum may be added to each dose of this.

Part xxxvii., p. 81.

Dysentery, Tropical.—Give large doses of ipecacuanha, from a scruple or half a drachm to ninety grains. Its action is speedy, certain, and complete—the disease being summarily put a stop to. A delightful ease and freedom from pain succeeds this dose, and there is no inclination to stool for twenty-four or thirty-six hours, when a perfectly healthy evacuation succeeds. But some treatment is necessary in order that the stomach may retain such large doses of an emetic substance. For this purpose apply a sinapism over the region of the stomach, and simultaneously give a draught containing a drachm of laudanum. By this means the sensibility of the stomach will be diminished, and the ipecacuanha safely administered. It is occasionally after all ejected. It must then be repeated till the stomach does retain it. By this method of treatment the mortality from dysentery in the regiment to which the author was attached, was reduced from five or ten cases in every fifty treated to only one, and in this case death was owing to abscess occurring in the liver.

Part xxxviii., p. 56.

DYSMENORRHOEA.

Belladonna in Dysmenorrhœa.—[Dr. Burne recommends the extract of belladonna in this painful affection. He says:]

In the treatment of painful menstruation, I have found the belladonna most valuable. I have usually prescribed it in the dose of a *quarter of a grain of the extract*, made into a small pill, which may be taken twice a day, where patients suffer, but not very severely, for two or three days about the menstrual period. In the more urgent cases I advise it to be repeated in one hour; then again after an interval of two; then of three hours; till two, three, or four doses have been taken, according to circumstances: and I have seldom been disappointed in the result. It may produce giddiness and dimness of sight, but they soon pass away. Its unpleasant effects are less than opium, and its efficacy decided.

Part ii., p. 33.

Secale Cornutum.—Dr. Fyfe, in speaking of the uses of ergot, says:

In dysmenorrhœa the ergot has been most useful. In one case, accompanied with what may, without exaggeration, be termed torture at each period, it appeared almost magical in its operation. It is right to state that it was given in combination with the valerian; which medicine, however, had been previously given, but without any apparent benefit.

Part iv., p. 14.

Ointment of Veratria.—Dr. Bushman supposes that dysmenorrhœa may frequently be owing to perversion of the nervous action of the lower portion of the spinal nerves, and found good effects from the external application of the ointment of veratria. *Vide Art. "Spasmodic Affections."*

Part iv., p. 1.

Leeches to the Knee in Dysmenorrhœa.—In three hospital patients under the care of M. Trousseau, the catamenia have followed the application of a leech to the internal surface of the knee. In one case a

was applied to the right knee; while it held on, the patient experienced nothing particular, but as soon as it fell off, pains in the loins came on, which lasted about an hour, and the discharge then appeared. The next day it was arrested again, and a leech was applied to the left knee; and the discharge appeared as before, and continued as usual during three days. In another case the pains of uterine congestion commenced with the application of the leech, which adhered during an hour. The effect produced by one leech is not wonderful, says M. Trousseau, because if the bleeding is allowed to continue, as large a quantity of blood flows as the ordinary amount of menstrual discharge.

Part v., p. 61.

Ioduret of Silver.—Dr. Patterson, in his remarks on the ioduret of silver, suggests its use in cases of painful and scanty menstruation, in half grain doses twice a day, gradually increased to two grains twice a day—in the form of pill—during the ten or twelve days preceding the expected return of the menses; and upon the accession of the discharge, and while it continues, the patient is directed to take the ioduret three times a day; but as soon as it declines, to omit the medicine altogether for a fortnight.

Part vii., p. 82.

Belladonna in Painful Menstruation.—In a discussion in the Medical Society of London, Dr. G. Bird drew attention to that form of dysmenorrhœa which was unaccompanied by organic change or attended by the discharge of shreds from the uterus, and in which the pain was referred to the lower part of the abdomen, immediately over the uterus. In these cases he had found belladonna, properly prepared, of the greatest efficacy. When the patient was of a leuco-phlegmatic habit, pale and chlorotic in appearance, he ordered five grains of extract of belladonna, and twenty grains of sulphate of zinc, to be divided into twenty pills, and of these one was ordered to be given immediately on the accession of pain, and repeated every two or three hours, until the pain ceased. When the patient was plethoric, and of full habit, he substituted ten grains of ipecacuanha for the zinc, and the pills were given in the same manner. In the intervals of menstruation purgatives were administered, with medicines tending to improve the general health. This treatment he had scarcely ever known fail.

Dr. Garrard has used belladonna in the forms mentioned by Dr. Bird, and in the second set of cases, attended by plethora, has, instead of the ipecacuanha, usually substituted colchicum.

Part ix., p. 76.

Treatment of Dysmenorrhœa.—Dr. Rigby, in his treatise on this subject, considers that it depends, in common with some other uterine affections, in derangement of the assimilating processes, which may be merely “the local phenomena of a general condition of the system.” This general condition, he thinks, is chiefly dependent on a gouty or rheumatic diathesis. He generally begins the treatment with one active dose of calomel, from five to eight grains, followed by a mild purge of rhubarb or magnesia next morning. Leeches to the anus either immediately before the menstrual period or equidistant between the two periods, are very efficacious; but often require repetition before their full value is seen.

The attention of the practitioner must now be devoted to the more specific treatment of the case. If the circulation be plethoric and strong, the urine scanty, high-colored, with considerable excess of lithic acid and

lithates, colchicum in the form of the acetous extract, with extract of hop or henbane, may be given at night, or night and morning, and some mild saline, with sp. ætheris nitrici occasionally during the day.

Where the disease assumes the rheumatic or rheumatic-gouty character, we usually find it associated with less power of general circulation, and with local symptoms of less active character. Guaiacum and iodine are valuable remedies in these affections, either separately or combined. The tinctura guaiaci ammoniata may be taken in milk night and morning; or ten grains of pulv. guaiaci and of magnes. carb. every morning, and from two to five grains of potass. iod., with extract of hop or henbane at night; or if it be deemed unnecessary to use the guaiacum, the potass. iod. may be given two or three times a day in sarsaparilla, with liq. potassæ, and the bowels regulated by an alterative or laxative pill at night; or, if it be desirable to promote diaphoresis, by a dose of Dover's powder.

There are few remedies which keep up a healthy action of the liver as well as the taraxacum, especially when preceded by a dose or two of mercurial medicine. It is prepared under a variety of forms, but I prefer the extract as being the most certain and convenient; half a teaspoonful at night, dissolved in a little warm milk, forms a by no means disagreeable cocoa-like drink; or it may be taken with milk and lime-water if necessary. Besides its ordinary effect on the liver, and, therefore, indirectly upon the bowels, by supplying them with healthy bile, I have reason to think that it also acts upon the skin like sarsaparilla, and for this purpose may sometimes be advantageously combined with it.

Part I., p. 194.

Dysmenorrhœa.—There are two varieties: the *mechanical*, where the catamenia are scanty; and there is contraction of the os uteri, either congenital or acquired; and the *membranous*, in which the menses are natural or profuse in quantity, and accompanied by the expulsion of a membrane from the womb, the uterus being large, hard and sometimes retroverted. This is primarily an affection of the ovary.

In the first variety, if the womb itself is of the natural size, dilate the os uteri with Dr. Simpson's concealed bistoury, and insert a sponge tampon. After a day or two pass a German silver stem, and repeat this at intervals of a week, gradually increasing the size, until the normal condition of the opening is obtained. If the womb itself is not fully developed, division of the os will do no good.

In *membranous dysmenorrhœa*, which is the most common, enjoin rest, and allow nutritive but unstimulating diet. Give pil. hydrarg. gr. ij. with ext. conii iij. night and morning; or Plummer's pill, gr. v. night and morning, till the gums are slightly tender. Then give liq. hydrarg. bichlor. 3j. in sarsaparilla or bark. If the patient does not bear mercury well, give the latter preparation from the first, instead of the pills, as it is really not a bad tonic; and rub a little ung. hydrarg. with ext. bellad. over the inguinal region. Apply 3 or 4 leeches to the upper and back part of the vagina once a week, and use hip baths, or poppy fomentations; and when the size of the womb is thus reduced, blister the sacrum occasionally.

When the gums have become sore, give small doses of potass. iodid.

When the uterus is retroverted, replace it by pressing with the finger upon the anterior part of the cervix, and let the patient wear an elastic abdominal belt, with a perineal support. Lastly, if the womb is very hard,

and has been long displaced, support it by Dr. Simpson's metallic stem. The use of mercury and leeching are the most important parts of the treatment.

Part xv., p. 313.

Dysmenorrhœa Occasioned by Ulceration of the Os and Cervix Uteri.—[From independent investigations, Dr. Edwards has formed the same opinions upon this subject as Dr. Bennet. His conclusions are:]

1st, That dysmenorrhœa is occasionally only a symptom of this disease, resulting from congestion and ulceration of the cervix and os uteri. 2d, That sterility is a most frequent attendant, though not, as has been considered, a necessary condition, the mechanical obstruction in the uterine neck being sufficient to account for it, as in dysmenorrhœa. 3d, That abortion is occasionally produced by it; when it does occur, the disease is commonly aggravated, sometimes altogether lit up by it. 4th, That when the os uteri, as well as the cervix, is ulcerated, the mischief extends from the former to the latter. The os uteri is generally the last part to yield to the remedies. In the treatment it is well to remember this fact. 5th, That in the generality of cases that have occurred to me, the nitrate of silver has answered all the purposes of an efficient caustic, and that I cannot but view the actual cautery, the Vienna paste, the pernitrate and acid nitrate of mercury, as well as nitric acid applications, of too violent a character for ordinary use to that portion of the body.

Part xvi., p. 286.

Chloroform.—The inhalation of chloroform is a valuable means of relieving the pain. The chloroform should be inhaled at bed-time, and then, if the patient remains perfectly quiet on recovering consciousness, she will have a good night's rest.

Part xxi., p. 315.

Dysmenorrhœa.—Dysmenorrhœa may depend, says Dr. Bennet, on a physical imperfection of the uterine neck; on contraction of the os internum, or of the canal which constitutes the cavity of the cervix. This contraction may be either congenital, or the result of inflammation. The peculiar character of the dysmenorrhœa, when caused by congenital contraction, is the absence of *any* uterine symptom during the interval of menstruation, and intense agonizing pain for a few hours before the flow of blood appears, either then disappearing or lasting throughout the period; these pains commencing with menstruation in early youth. If they are occasioned by inflammation, there are the same symptoms at the time of menstruation, but there is not the same immunity from uterine symptoms in the interval of the catamenia.

The cause of the pain experienced under these circumstances is evident. The cavity of the non-pregnant healthy uterus not containing more than about ten or eleven drops of fluid, as soon as the catamenial secretion commences from the lining membrane of the uterine cavity, unless the blood find a free exit through the os internum and the cavity of the cervix, it distends the uterus, and gives rise to great pain. The obstruction may merely be at the os internum, spasmodically contracted; in which case, as soon as it has been overcome, the blood escapes freely, and pain disappears. But if the os internum is permanently contracted, or the contraction exists in the cervical canal, the pain may continue throughout the catamenial period.

A contracted state of the upper part of the cervical canal, or of the os

internum, is not, I believe, an unfrequent complication of inflammation of the cervix, from the swelling and hypertrophy of the substance of the organ which it occasions. This remark, however, does not apply to the inflamed region of the cervical canal, which is uniformly distended by the existence of inflammation.

It appears to me that a free communication between the external and uterine cavities, allowing the *easy* introduction of the uterine contents, is generally an anomalous condition, indicating the existence of disease, unless observed soon after menstruation, when the os internum closes, or soon after parturition, when it has not yet had time to recover its normal contracted state. The principal morbid conditions in which I have observed a free communication between the two cavities, are inflammation and uterine tumors. If the inflammation which exists at the os internum in the lower part of the cervical cavity, ascends as far as the os internum, it appears to relax the muscular contractility of that region. The os internum is always open when the inflammation passes into the cervical cavity, and implicates its lining membrane. The same effect is produced by the development of the uterine cavity, through the formation of tumors in the substance of the uterus, or from any other cause, the os internum gradually opening as the uterus enlarges, probably by the same mechanism as in pregnancy. This is so generally the case, that the fact of the uterine sound penetrating easily through the os internum in an enlarged uterine cavity, may be considered a valuable symptom. The existence of such tumors, to add to those with which we are already acquainted.

Extreme dysmenorrhœa from congenital contraction of the cervical canal and os internum, independent of inflammation, is, I believe, of *rare occurrence*. This is a fortunate circumstance, as it is most embarrassing to treat, requiring an amount of interference with the uterine organs, which it is very painful to have to propose to an unmarried female. Distention of the contracted cervical canal is, however, sometimes the only means of having of remedying an amount of suffering at the catamenial period, so extreme as to render life nearly a burden, and as to react deeply on the general health.

Whatever may be the cause of dysmenorrhœa, the mode in which the menstrual secretion takes place is modified by its existence: instead of a flow of bright blood, regular and continuous, although generally increased by exercise and diminishing by rest, we have a dark, interrupted, and scanty discharge. After severe uterine pains, which may last many hours, are often accompanied by tenderness and swelling in the ovarian region, and pain in the back and down the thighs, more or less dark clotted blood is thrown out. Its expulsion is generally followed by relief, and by a free flow for a while, when it again diminishes, and the same ordeal again takes place. Sometimes the interruption will be complete for one, two, or three days, the pains subsiding with the menstrual flux, and returning when it again makes its appearance. The venous condition of the menstrual secretion shows plainly that, either from inflammation, congestion, or some other cause, the uterine circulation is defective, the blood stagnating in the vessels of the uterus, remaining in its cavity, and distending it after it has been secreted.

Treatment.—Constitutional dysmenorrhœa may be palliated in its attacks, and can seldom be removed by medical treatment. A great

of subsequent uterine disease would, however, be spared to those young females who unfortunately present it, were mothers more generally aware that its existence constitutes throughout life a strong predisposition to uterine inflammation, and that they cannot take too great care of such of their daughters as suffer from it. For such young females, the discipline of public schools may be said to be nearly always too severe, and often to lay the foundation for much future physical and mental misery. That this must be the case, will be easily understood when we reflect that the domestic treatment of this form of dysmenorrhœa consists principally in *rest* and *warmth*. Females who suffer habitually from dysmenorrhœa, whatever their age, should remain quietly at home, taking care to preserve themselves from atmospheric vicissitudes during the first day or two of menstruation, which is the period during which the pain is mostly felt. A warm hip-bath will often be found useful. If the pains are very decided, it is even best to confine the sufferer to bed, and to apply warm linseed poultices to the lower abdominal region—a valuable and simple mode of soothing pain.

Although this is frequently a symptom of uterine disease, we are often obliged to treat it as the chief disease. If warmth and rest fail, inject from 15 to 20 minims of laudanum, mixed with a little warm water, into the rectum: this is of more value than double the quantity by the mouth, and its disagreeable effects are avoided. If the first injection fails, or is not retained, a second, half an hour later, will be more successful. Chloroform, either inhaled or given in doses of 30 or 40 minims, mixed with mucilage or camphor, which favors its solution in water, is sometimes of use, though not so valuable as opiates.

It is the fact of dysmenorrhœa being so frequently caused by inflammatory disease, that explains the success which often attends blood-letting, both general and local, and which has induced so many authors to recommend it, although unaware of the pathological state which it relieves. General blood-letting acts by revulsion; whilst local blood-letting directly relieves the congested and embarrassed abdominal circulation. I seldom, if ever, resort to general bleeding in dysmenorrhœa.

A few leeches applied to the groin, or, better still, to the neck of the uterus, when possible, if the discharge is scanty or temporarily arrested, is much more likely to mitigate the pain, and with less loss to the economy. Purgatives, which are frequently useful, act in the same way as leeches, by depleting the abdominal circulation. Some authors, amongst others Dr. Gooch, have considered dysmenorrhœa to be frequently akin to rheumatism, and have recommended colchicum, guaiacum and other medicines usually given in rheumatic affections. That the uterus may be the seat of such an affection, is undeniable; but I am persuaded that its frequency has been greatly exaggerated, as likewise that of irritable uterus. Indeed these two conditions may be said to have been, to a great extent, mere theoretical creations, destined to account for pathological conditions, the real nature and meaning of which have, until recently, been a mystery to the profession.

Part xxv., p. 204.

Case of Chronic Bronchitis, complicated with Dysmenorrhœa—Treatment of the latter by Biborate of Soda.—In Germany, the biborate of soda is used to produce uterine contraction, and to facilitate the excretion of lochia and the menstrual fluid. In the former case, it is given along

chiefly from a very painful condition of menstruation. She married for two years, and during the whole of that period, the discharges had been regular in their recurrence, lasting usually a week, and attended throughout with such great suffering, that she always been compelled to observe the recumbent posture for part of the time. The matters discharged were usually very dark and mixed with clots of blood and numerous flakes of whitish matter. In the intervals, more or less of leucorrhœa was constantly accompanied by a dull aching pain in the lower part of the back. The vagina was redder than natural, covered at the tip and edges with papillæ, and somewhat fissured. Pulse 96, and a little sharp. (With what is mostly observed in those who suffer from aggravated leucorrhœa, she had never conceived.

As it appeared probable that the pulmonary affection was either altogether sympathetic, Dr. Bennet directed his treatment to the uterine affection, and prescribed his usual formula of the combination of borax with a mild stomachic.

R Magnes. carbon. gr. v. ; pulveris rhei gr. ij. ; sodæ biborat. calumb. ʒj. ; ter die sumend. Empl. ammon. cum hydr. lumbis. If sickness is produced, acid. hydrocyan. dil. mij., may be a dose.

The following menstrual period was attended by scarcely any discharge. The discharge lasted for five days: it was copious, and consisted of either shreds or flakes. During the whole time she continued her ordinary avocations, and enjoyed a degree of comfort to which she had been for years a stranger. The aching in the back has entirely disappeared, the chest symptoms have vanished.

The class of cases to which the treatment by borax seems to be best adapted, are those in which no organic disease exists, but which in tolerably robust subjects, are attended by slight pyrexia, tenderness of the loins, the expulsion of flakes and shreds of lymph, and the other symptoms of disease of active congestion rather than mere nervous derangement.

the sacrum; in other cases, however, no relief is obtained from any of these measures.

Case.—A lady, aged twenty-six, well formed, and of dark complexion, had become deficient in her menstruation; and the diminution was accompanied with hysterical paroxysms, and the most intense pain of the uterine region, as soon as the secretion commenced. This state of extreme suffering continued for some years, and rendered her existence quite wretched. She had consulted a variety of medical men, and many remedies had been tried, to remove or alleviate her pains. She had been locally bled, had frequently used the warm hip-bath, with purgatives, opiates, antispasmodics, etc.; but all these means had fallen short of any permanent relief. The only remedy which had given her any respite was large doses of the liquor opii sedativus, although it always disordered her system. In such a case as this, as all ordinary remedies had been found unsuccessful, and reflecting that the indication of cure was clearly to subdue the morbid action of the uterus, and restore its normal secretion, I resolved to combine some preparation of iron with a sedative which would not contract the secretory cavity of the uterus; accordingly, she was immediately placed under the following treatment:

R Pilulæ ferri compos. 3ij.; extracti conii 3j. Misce et divide in pilul. xl. quarum capiat duas ter quotidie.

This plan was steadily observed through the interval up to the next period, which passed with an increased secretion, and without suffering or hysteria.

The treatment was persisted in for some months with complete success; and two years have elapsed without any return of suffering.

I do not wish to be understood that the above treatment is recommended for the relief of all cases of dysmenorrhœa. When the symptoms indicate an inflamed condition of the internal membrane of the uterus, manifested by the discharge of fibrinous shreds and febrile disturbance of the system, such treatment is, of course, inadmissible and the case must be treated according to its indications by local bleeding, by the warm hip-bath, digitalis, saline aperients, etc.

Dysmenorrhœa, as well as leucorrhœa, may be sometimes also caused by the local irritation of ulcers, either within or near the os uteri; and has been successfully treated by the application of the nitrate of silver through the speculum—an instrument which has brought to light local causes of uterine disease which had long escaped detection by the ordinary means. When, therefore, in dysmenorrhœa, the symptoms are found to resist general methods of cure, and when the intermenstrual mucous discharge from the vagina is ascertained to be purulent and mixed with streaks of blood, it may be fairly inferred that the painful character of the menstrual period is kept up by epithelial ulceration, too far within to be discovered by common observation, and too superficial to be detected by the finger.

When the symptoms are derived from induration and enlargement of the cervix uteri, the speculum might overlook what the finger will not fail to discover. Such cases are of no uncommon occurrence. The enlargement is most frequently found on the posterior part of the cervix, and in my experience is very difficult of cure, even when it is not of a malignant character.

Part xxviii., p. 286.

Dysmenorrhœa.—*Vide* Selections from Favorite Prescriptions, Art. "Medicines."

There are only two local anodynes from which I have obtained results, these are carbonic acid gas and the vapor of chloroform.

Part x

Preventive Treatment.—When dysmenorrhœa is kept up of ovarian or uterine congestion or inflammation, we must in these states during the catamenial intervals, by repeated application to the hemorrhoidal vessels, by assiduous counter-irritation to the groins or sacrum, and by all the other usual internal remedies against the local inflammation and congestion of other isolated parts of the body. If chiefly neuralgic in character, alteratives, and mineral tonics, good diet and regimen, and whatever tends to the standard of health, will best cure the neuralgia.

Part xx

Gouty and Rheumatic.—For the gouty and rheumatic disease, useful results will be found from the administration of guaiacum, either alone or in combination with alkalis. Potassium possesses a sedative action on the sexual organs, no other drug in the Pharmacopœia, and in many cases by its use you may succeed in warding off attacks of dysmenorrhœa.

Part x

Obstructive Dysmenorrhœa and Sterility from Contracture of the Cervix Uteri.—Prof. Simpson says:

When dilatation is effected mechanically, whether slowly or rapidly by sponge tents, relapse of the stricture or constriction is apt to return after a time, just as so often happens after the cure of a bad stricture of the male urethra, by merely dilating instruments. The best and speediest mode of cure is to have recourse at once to the operation of the os by incising it at both sides. For the performance of this operation, a metrotome is required; this must be introduced into the uterus, where the incision begins at first quite shallow and

DYSPEPSIA.

Nitrate of Silver in some Affections of the Mucous Membrane.—[Dr. Hudson relates the two following cases as good examples of the efficacy of this remedy, and of the kind of case in which it will prove valuable.]

M. M., aged 15, suffered for six months acute pain, with tenderness on pressure in the epigastric region; great distention of the stomach after eating; thirst, costiveness, and vomiting of sour fluid. Pain usually commences about an hour after dinner, and continues through most of the night, preventing sleep; it is generally accompanied by vomiting of sour fluid, without food.

His sunken and anxious face presents a picture of extreme suffering.

R Nitrat. argenti gr. $\frac{1}{4}$; opii gr. $\frac{1}{4}$; pulv. rhei; ext. humuli, aa. gr. j. Ft. pil. ter die sumenda.

Bread and milk for diet.

His further history is, that during his stay in the hospital he had but one return of the vomiting. The pain and tenderness subsided in the course of a week. The pills were discontinued on the tenth day, and on the twenty-eighth he was discharged free from complaint.

M. D., aged 45, has had frequent attacks of pain in the stomach and vomiting for the last fifteen years. She formerly enjoyed remissions of the complaint, but for ten months past she has had three or four attacks every day. Pain usually comes on in about an hour after taking food. She then throws up a large portion of the food, mixed with sour fluid; occasionally she vomits a quantity of fluid resembling the washings of flesh; the bowels are costive.

She was ordered a milk diet and the pills, as in the last case.

Left the hospital cured.

Part i., p. 74.

Ox-gall.—The following pills recommended in cases of dyspepsia attended with violent headaches, pain in the epigastric region, obstinate constipation, acidity of stomach.

R Inspissated ox-gall, two drachms; oil caraway, ten minims; carbonate of magnesia, sufficient to form a mass. M.

Divide into thirty-six pills. Take two three times a day.

Part vi., p. 60.

The Complication of Cutaneous Affections with dyspepsia, accompanied with a sensation of heat and oppression at the epigastrium, increased by food, etc., contra-indicate the administration of arsenical preparations.

Part viii., p. 14.

A Modification of the Ipecacuanha Pill recommended in cases of gastro-intestinal derangement as follows:

R Inspissated bile of the swine, two or three grains; ipecacuanha, one grain; carbonate of potass, two grains. M. Make into a pill.

Considered a valuable agent in dyspepsia, and in many chronic affections, attended with defective biliary secretion. Also in chlorosis, amenorrhœa, some forms of dysmenorrhœa, and constipation.

Part viii., p. 71.

Iodide of Potassium has been found useful in certain forms of dyspepsia. Dr. Oke attributes its good effects in such cases to its power of invigorating the system:

R Iodide of potassium, 5 grains; sesquicarbonate of soda, 10 grains;

camphor julep, $1\frac{1}{2}$ fluid ounce. M. This dose to be taken three times a day for a month or six weeks.

The iodide of potassium is always inadmissible where there is any local disturbance, or where the tongue is much coated. Part II, p. 1.

Dyspepsia.—A most excellent aromatic bitter is copaliba bark, and may be given in doses of a tablespoonful of the infusion (as it contains 30 aq. fervent, Oj. ;) thrice daily. Part III, p. 1.

Dyspepsia with Pyrosis.—When there is pyrosis, an excellent remedy is the new salt, "bisulphate of iron and alumina," given in doses of ten grains, dissolved in any aromatic water. Part III, p. 1.

Catarrh of the Stomach.—In cases described as "catarrh of the stomach," in which there is much vomiting of viscidropy mucus, give in doses of ten or twelve grains, three or four times a day. It may be reduced to an impalpable powder, and made up into an electuary with treacle and a little powdered ginger. A little supertartrate of potash may be added, if constipation is produced by the alum. Part III, p. 1.

Dyspepsia.—In obstinate cases, where there is great irritability, loss of spirits and anxiety, examine the urine for oxalate of lime. If this substance is contained in the urine, give nitro-muriatic acid. Part XI, p. 1.

Treatment of Nervous Gastro-Intestinal Affections by Charcoal.—In many forms of dyspepsia powdered charcoal is useful, given in doses of a teaspoonful or two before meals, twice or thrice a day. It may be given in the form of pills or lozenges, or made into a paste with water, or given upon bread.

This inert powder seems neither to be digested nor absorbed; it passes through the digestive canal, and takes hold of the gases and is very hurtful to the economy. The charcoal powder keeps the bowels open, with those patients where gastralgia is complicated by constipation, and its effect is not confined to rendering digestion better, but it likewise allows of more tonic and abundant food being used, whilst it renders the stomach more fit to bear such active remedies as were but ill borne before. Part III, p. 1.

Heartburn and Indigestion.—[Dr. Hunt dwells particularly upon the connection of heartburn with the gouty diathesis. This fact was first established by Dr. Garrod, who pointed out, that immediately before a gouty paroxysm, the blood became loaded with uric acid, which had not yet been filtered off by the kidneys; and that whatever be the mode of the removal of the uric acid from the system, removes all this morbid phenomena altogether. The connection between this morbid condition of the blood, and constant heartburn, will be made more evident by the following remarks:]

In the first place, it appears that when the kidneys fail to eliminate uric acid, the other secreting organs attempt to relieve the system by a kind of compensating action; the perspiration becomes more than usually profuse; this is attested by its odor and its action on litmus paper. The sweat then partakes of the same quality. This is made evident by the sour and sour taste in the mouth, which is increased by everything that augments the flow of saliva; as, for example, the introduction of food into

mouth; each morsel, in this condition of the blood, will immediately appear to turn sour, even before it is swallowed; whereas, there is reason to believe this sourness is caused by the additional supply of acid saliva. Sometimes, also, large quantities of acid matters are carried out of the system by a spontaneous diarrhoea. Now as all these secretions partake of the abnormal (acid) quality of the blood, may we not presume that all the fluids proper to the stomach, the gastric juice and others may also participate in it. Indeed, such is proved to be the case, by the fact, that when vomiting is excited under these circumstances, and in this state of the system, the matters ejected are always intensely acid.

If this be admitted, it follows, that the flow of these sour secretions into the stomach being constant, the constancy of the heartburn is at once explained, and the immediate increase of the latter on taking any especially solid, hard, indigestible articles of food, is also explained by the increased supply of abnormally sour gastric juice the secretions are excited to pour out. So immense is the quantity of acid matter sometimes suddenly poured into the stomach in such cases, that it would also appear as if the secretions attempted to relieve themselves, the vessels that supply them, and the whole system, by this vicarious discharge of the gouty virus with which they were loaded.

By the aid of the discovery made by Dr. Garrod of the presence of urate of soda in the blood, we can also explain why some persons only suffer from constant heartburn, or from heartburn uninterruptedly for a few weeks or months, or for some definite period, while others are never perfectly free from it through a long series of years.

The former are those whose kidneys only occasionally fail to excrete uric acid. The latter include those who are the victims of chronic gout with tophaceous deposits, in whose blood uric acid is always more or less present from a permanent cessation of the excreting function from organic disease of the kidney. The intimate connection between constant heartburn and the urates in the blood is further confirmed by various other circumstances; for example, it is always relieved by the transference to, or concentration of, the gouty matter on some external part, as by an attack of gout in an extremity. It is also diminished by the excretion of uric acid in the urine, whether induced by a natural effort, or under the influence of appropriate remedies. Again, as in this condition of the blood and system a slight bruise or sprain will provoke an attack of gouty inflammation in the injured part, so a slight irregularity of diet will create a fit of indigestion, and induce additional sufferings from heartburn, which, under a more healthy state of the body, it would have been unable to excite.

Thus we see the phenomena of gout afford exceedingly clear evidence of what I wish to prove, viz., that the constant supply of acid, the cause of constant heartburn, is derived from the blood circulating in the vessels of the stomach.

Part xxvi., p. 80.

Remedy for Indigestion.—As much of the following compound, properly diluted, as will not affect the taste of the food disagreeably, may be taken along with each meal: Solution of potash, chloride of sodium, of each one ounce; phosphate of soda, a drachm and a half; water, three ounces.

It is not intended to be resorted to as an occasional remedy for various forms of indigestion, but constantly, in like manner as common salt.

Part xxvi., p. 81.

General Pathology and Treatment of Dyspepsia.—Our knowledge with regard to the offices performed by the gastric, biliary, and pancreatic juices in digestion has of late years been much advanced. Thus the gastric juice more especially operates on the albuminons, and the pancreatic juice on the fatty compounds of the food. The function of the bile is comparatively more obscure, although it probably acts as a means of precipitating and separating some of the excretory matters from chyme, and so facilitates assimilation of the nutritive portions. Digestion may be deranged by those causes which too much increase or diminish the secretion of these three fluids. Thus, excess of acidity in the stomach is one of the most common causes of dyspepsia, producing that form of it which accompanies scrofulous and tubercular diseases. It may be in such excess as to neutralize the alkaline action of the pancreatic juice, and render it difficult or impossible to emulsionize fatty matters. In such cases, alkalies and bitter tonics and the direct introduction of animal oils in excess, are indicated. On the other hand, the gastric juice may be diminished in quantity, as frequently occurs in persons who suddenly overtaken the power of the stomach at feasts, or in old persons with feeble digestion. The sense of load after eating is generally indicative of slow digestion from this cause. In acute cases, a stimulant rouses the stomach to increased action, and hence the moderate use of drains and generous wines after dinner is occasionally useful. In old persons the sense of load and feebleness may be removed by giving up tea, and drinking at night a little weak brandy or water. In chronic cases, acids are indicated, especially muriatic acid. The tr. ferri co. of the pharmacopœia is a useful preparation in chronic females. We have no distinct means of arousing the pancreas into action, and yet many cases are on record in which fatty matters have passed undigested through the alimentary canal in consequence of obstruction of the pancreatic duct. In such cases, and all those in which fatty matters are difficult to digest, alkalies, especially the liquor potassæ with vegetable tonics, are indicated. When the bile is deficient, constipation and dyspepsia are usual results, and are to be relieved by gentle mercurial purgatives, with extract of taraxacum, and by remedies, such as rhubarb and especially the compound rhubarb pill, which, by acting on the duodenum, also favor the flow of bile into the upper part of the alimentary canal. Dr. Clay, of Manchester, has recommended in such cases the administration of ox-gall, a remedy which, although not extensively given, is evidently rational, and calculated by its purgative action to be highly serviceable. Excess of bile, on the other hand, ought to be treated by drastic purgatives, diuretics, and diaphoretics, according to circumstances, to cause excess of excretion. Exercise should also be insisted on to call the lungs into action, and thus relieve the liver in its office of separating hydro-carbon.

Part xxv., p. 31.

Prolonged Dyspepsia.—Dissolve two grains of strychnia in ℥j. of phosphoric acid (P. L.); five minims of this solution may be given three or four times daily in cases of prolonged dyspepsia, and where the nervous system requires tone.

Part xlix., p. 31.

Deficient Secretion of Gastric Juice—Slow and Imperfect Digestion.—When the stomach is empty of food, it contains no gastric juice. The secretion takes place when food is brought in contact with its walls. When there is food in the stomach, and gastric juice is required, the

nervous influence exciting the secretion may be deficient in energy, and the juice may be poured out in too small quantity for complete and easy digestion.

[The depressing passions, fear and anger, lessen the secretion of the gastric juice. Sedentary and indolent habits, and the habitual consumption of more food than the system with such habits requires, also produce the same effect.]

It has been clearly shown, by the experiments of Spallanzani and Dr. Beaumont, that the quantity of juice required for digestion is proportioned to the quantity of food. When gastric juice has dissolved a certain quantity of food, it is saturated, and can dissolve no more. The digestive power may, indeed, be restored, in a certain degree, by the addition of water, or by the addition of muriatic or lactic acid; but to carry digestion much further, there must be a fresh quantity of the juice. If, then, a man eats too frequently or too much, the gastric juice may be inadequate for the proper and easy digestion of food, without any fault fairly attributable to the stomach. The organ is simply over-taxed.

A necessary effect of an insufficient secretion of gastric juice is, of course, slowness of digestion. The food, instead of being completely digested, and passing out of the stomach, in two or three hours, remains undigested, or only partially digested, for a much longer time—it may be for twelve, or even twenty-four hours. The undigested portions of food remain in the stomach, and, during the slow process of digestion, there is a sense of weight or uneasiness at the pit of the stomach, which gradually lessens, and at length ceases, as the food gets dissolved and passes out of the stomach. If any portion of the food remain solid, there is often, at the end of some hours, when the stomach is getting empty, a distressing feeling of spasm, or cramp, at the pit of the stomach.

If portions of food remain undigested many hours, they irritate the lining membrane of the stomach, and cause headache, a slightly furred tongue, and feelings of general disorder.

The remedies for this habitual slow digestion, in persons otherwise healthy, are to be sought in proper regulation of the diet and habits of life, and in medicines which tend to increase the secretion of gastric juice.

The diet should consist of food easily soluble, the stomach should never be overloaded, and there should be a sufficient interval between meals. Care should especially be taken to avoid new bread and tough meat, and not to oppress the stomach by malt liquors, or to indulge in fermented drinks of any kind beyond the point which, from habit or otherwise, the state of the nervous system may require. Bodily fatigue and nervous exhaustion should be avoided. A certain amount of bodily exercise and agreeable occupation of the mind, promotes digestion, and improves in various ways the general health.

Various medicines—*ipeacuanha*, *rhubarb*, *cayenne pepper*—taken in small doses, stimulate the lining membrane of the stomach, and cause a more abundant outpouring of gastric juice, and may often be taken with advantage just before the principal meals by persons whose digestion is habitually slow. For example, from half a grain to two grains of *ipeacuanha* and three or four grains of *rhubarb*, or a grain of *capsicum* with three or four grains of *rhubarb*, in a pill, may be taken before dinner, or before breakfast and before dinner.

remedy for habitual slow digestion, ipecacuanna seems to me effectual than any of the others. The dose of it should, of course, be small to cause a feeling of nausea.

A glass of water and a lump of sugar, after a meal, will relieve the uneasiness. The muriatic and nitro-muriatic acid 1 hour before meals, are also useful. Alkalies must not be given to weaken the gastric juice.

It often happens when the stomach is weak and disorders more food is eaten than the healthy stomach can readily master, especially when at the same time it secretes an unhealthy mucus, so that the undigested food in the stomach undergoes putrefaction or some unnatural fermentative process, instead of proper digestion.

One of the most remarkable properties of the gastric juice is preventing the putrefaction of meat. It likewise hinders the lactic and alcoholic fermentations, which consequently do not occur in the stomach during healthy digestion.

In some cases, the food undergoes common putrefactive changes, and sulphureted hydrogen is evolved. Distention and uneasiness of the stomach come on, with frequent eructation of sulphureted hydrogen gas, resembling that of rotten eggs. This is attended with severe frontal headache, often with a feeling of chilliness—and other disorders familiar to the effects of surfeit. All this disorder is speedily removed when the stomach is emptied by a vomit.

This kind of indigestion is a common effect of over-eating, even in healthy persons, and hence is popularly known as a "stomach ache." It is more prone to occur in persons with carious teeth, when food passes into the stomach.

It frequently occurs, too, as we have seen, in cancer of the stomach, where offensive secretions are poured into the stomach; while, in the consequence of an obstacle in the pyloric orifice of the stomach, some impediment to the free action of its muscular fibres, is und

Should the disorder occur in spite of precautions such as these, and sulphureted hydrogen is given off, producing belchings like rotten eggs, half a minim of creasote may be given in a pill at the time of meals. If the fermentative change be accompanied by distention and eructation of inodorous gas (carbonic acid), nitro-muriatic acid and the stimulant dinner pills named will be useful.

The fermentative processes in the stomach give rise to products which, when absorbed into the blood, have an injurious influence on the general health, and the frequent repetition of the indigestion prevents the proper nutrition of the body. The patient is usually depressed in spirits, is less capable than in health of mental exertion, and has lost some of his customary energy and strength. It often happens that oxalic acid is one of the products of the unhealthy digestion, and that crystals of oxalate of lime may be found in the urine. In many such cases the indigestion itself results from a faulty state of the general health, or from over-work, or depressing influences of other kinds.

When thus arising, the flatulent distention of the stomach may sometimes be prevented by the pills composed of ipecacuanha and rhubarb, or capsicum and rhubarb; but a remedy which succeeds more frequently is the nitro-muriatic acid—ten minims of each of the dilute acids twice a day—taken half an hour, or three quarters of an hour before the principal meals.

Much good will result, also, from horse-exercise, change of air, and other influences which tend to improve the general health.

The diet should be light and nourishing, and the patient should eat sparingly of succulent vegetables, fruits and saccharine substances in general, and should carefully abstain from ill-fermented malt liquors.

A more common kind of fermentation in the stomach is the lactic, by which the starchy principles of the food are converted into lactic acid. This kind of fermentation, if fermentation it can rightly be called, is most common in nervous persons with feeble digestion, in whom it not unfrequently happens that acid collects in great quantity in the stomach after meals. They often familiarly tell us, that almost everything they eat turns to an acid. If vomiting occur an hour or two after meals, the matter thrown up is very acid, and, on analysis, the acidity has been often found to be mainly due to lactic acid.

This lactic fermentation is not, like the kinds of fermentation before spoken of, attended with evolution of gas. It causes, therefore, not flatulence, but heartburn and pain in the stomach, which is often very severe, and which is sometimes attended with a feeling of constriction, or cramp.

The uneasiness that results from undue acidity thus arising, may be relieved for the time by alkalies, and may often be prevented by giving, before meals, medicines which have an astringent or bracing effect on the coats of the stomach—bismuth and magnesia, or, better still, the mineral acids, especially the sulphuric acid.

There can be little doubt that the same changes occasionally take place within the intestinal canal. Hydrogen is one of the gases that have been found in the intestines, and now and then the matter vomited by persons of weak digestion has the sour rancid smell of butyric acid.

The acid and unnatural products of digestion may pass into the bowels, fret their lining membrane, and excite griping pain and purging, some

Organs.—[The state of the nervous system not only influences the stomach, but it is also affected by the condition of the blood because from the blood are derived the secretions which it contains.]

The stomach is in more direct relation with the liver than any other important excreting gland. The stomach and the liver are parts of the same great apparatus, whose office it is to supply from the food taken as food, fit material for the sustenance of the body. The liver and the stomach are in some degree complementary to each other.

If the secretion of the liver be defective, in consequence of weakness of power in the organ, or in consequence of the congestion of the liver from high living and indolent habits, the functions of the liver are almost invariably disordered, and, in conjunction with a slight inflammation in the conjunctiva and skin, there is a coated tongue, an impaired appetite, nausea and especial disrelish of rich dishes, constipation; and this defective action of the stomach and liver, there is disturbed sleep, and great depression of spirits.

The remedies for this condition are, a light and simple diet, for drink; fresh air; exercise, to promote perspiration, with cathartics and medicines that increase the secretions of the liver, bowels. A moderate dose of blue pill, repeated two or three times a day, at night, and a drachm of sulphate of magnesia in infusion of senna in the morning, answers well for persons strong enough to bear it. Fifteen grains of sesquicarbonate of soda, twice a day, with a drachm of potassio-tartrate of soda to act gently on the bowels, or some other cathartics of similar action, may be given with benefit.

Again, when the kidneys imperfectly perform their office, and other constituents of the urine contaminate the blood, the functions of the stomach are generally more or less disordered.

This is especially seen in advanced stages of Bright's disease. The kidneys are atrophied. The prominent symptom of the stomach in such cases is nausea or vomiting. The vomiting is usually

In the next place, the gastric juice becomes vitiated by admixture with urea, and probably with other hurtful excrementitious matters. The mucous membrane of the stomach must be regarded as an expanded gland, destined to furnish abundant secretions, and, by virtue of its active secreting function, occasionally instrumental in eliminating noxious principles from the blood. It has been found, indeed, on chemical analysis, that, in malignant cholera, and in those diseases of the kidneys in which the secretion of urine is very defective, the matters vomited contain urea, or the muriate or carbonate of ammonia derived from the decomposition of it.

The elimination of these foreign matters, or the reflex nervous influence, may, moreover, excite the secretion of gastric acid when there is no food in the stomach to dissolve; or may cause congestion of the stomach, and thus lessen the supply of gastric juice; or may lead, directly or indirectly, to an inflammatory condition of its lining membrane, and so not only lessen the supply of gastric juice, but also cause a secretion of unhealthy mucus, which, from its proneness to ferment, is an additional source of gastric disorder.

A stomach-disorder caused by some noxious matter in the blood, is apt, if it exceed certain limits, to be followed by an analogous disorder of the bowels. The cause of disturbance acts alike, though in different degrees, on the different parts of the intestinal canal. An illustration of this is seen in granular disease of the kidney, in which diarrhoea not unfrequently coexists or alternates with the gastric disorder, and in which the matters voided by the bowels, as well as those ejected from the stomach, have been found to contain urea.

In granular disease of the kidney, the blood is always impoverished, and there is a source of further exhaustion in the abiding drainage of allumen from the system. It is very important, therefore, to remedy the disorder of digestion, and, so, in the greatest possible extent, to supply the waste. Not unfrequently, indeed, more relief can be given by remedying the stomach disorder than by any measures in our power that directly affect the kidney itself.

The vomiting or nausea may generally be controlled by the dilute hydrocyanic acid, which may be given in doses of four or five minims three times a day, and which may be conjoined with small doses of potash or soda, if any indications of undue acidity likewise exist.

Another remedy, very effectual in controlling the vomiting, is creasote, of which a minim or less may be given, in a bread pill, three times a day, before meals.

If these means should fail, the vomiting, and much of the associated gastric disorder, may often be stopped for a time by a few purgative doses of cream of tartar and jalap, which probably relieve the stomach by causing a more abundant elimination of the noxious matter by the bowels. This medicine is best given, as are most others of similar action, in a single dose sufficient for the desired object, in the morning, before breakfast, since it will then, in addition to the drain it causes from the mucous membrane, only sweep away the refuse of digestion; whereas if it be given at other times or in repeated doses during the day, it sweeps away food that has been more or less digested, but the nutritious elements of which have not been absorbed.

When such impediments to healthy digestion exist, very great care should be taken in diet.

of life that conduces to gout; who eat, that is, large quantities of food, and drink freely of malt liquors.

In such persons, occasional indigestion is very common, marked chiefly by excessive acidity of the stomach and hence the condition of the urine, which contains a sediment of lithic acid or lithic acid gravel, or which, without this, is high-colored than commonly acid. With this acid indigestion there is often action of the liver, a bilious tinge in the complexion, coated tongue, which sometimes dries at night, and heavy and unrefreshing sleep.

In this form of indigestion, much relief is given by alkalies to neutralize the excess of acid in the stomach when digestion is stopped or prevent the uneasy sensations to which it gives rise. Alkalies do good also, and more permanent good, by promoting the action of the liver and kidneys. The bicarbonate of soda and carbonate of potash are, in most instances, the best forms in which to be given, and the best time for giving them, as was pointed out, is two or three hours after the principal meals. Fifteen grains two or three times a day, is, in most cases, a sufficient dose. In case of a sense of heat in the stomach, this may be conjoined, as recommended, with a few grains of nitre.

At the same time, a few doses of blue pill may be given at night, further to promote the secretion of the liver, and colocynth with henbane, to keep up free action of the bowels.

The use of alkalies should be continued for some weeks. When gouty symptoms exist, a grain of acetous extract of colchicum may be given at night.

Persons who suffer from this kind of indigestion should promote the action of the lungs and the skin, and, with this, take active exercise, be much in open air, and sleep in an open room, and they should live on a simple and abstemious diet—

Dr. Prout supposed that a more than common disposition to the formation of oxalic acid in the system is indicative of a peculiarity of constitution; and he expressed this supposed peculiarity by the term, *oxalic diathesis*.

Oxalic acid exists in many plants, and may come to be present in the urine in several ways.

It may be taken in the food; may escape conversion in the stomach, and after, its absorption in the blood; and may thus pass off in the urine, in combination with lime.

Many vegetables contain oxalic acid in combination with alkalies or with lime. The stalks of rhubarb and sorrel, which are largely eaten in this country, contain it in considerable quantity in combination with alkalies.

In some persons, the oxalic acid taken in these articles of food is changed in the process of digestion, or undergoes conversion in the blood by the influence of oxygen, and consequently does not pass off, as oxalic acid, in the urine. In others, whose power of digestion is weaker, or in whom respiration is less active, the oxalic acid escapes conversion, and passes off in the urine in combination with lime.

This may happen in persons who are in perfect health, and who have no marked tendency to the formation of oxalic acid in the system. With this occasional, and, if we may so term it, *accidental* presence of oxalic acid in the urine, we have nothing here to do. It may lead to the formation of a small calculus of oxalate of lime, and so have very serious results; but it does not denote any abiding disorder of digestion or nutrition.

Oxalic acid may be formed in the body, and, as Dr. Garrod has shown, its presence may be detected in the blood when none of it is taken in the food.

To the patient nothing seems amiss in the urine. He complains only of his indigestion and its accompanying ailments. It is the form of this indigestion that we have now to consider.

It presents no striking or distinctive characters. The appetite is often good, sometimes more craving than in health; digestion is not slower than it should be; there is no pain, no sense of oppression or weight at the stomach immediately after meals; there is seldom vomiting or heartburn. But much discomfort is caused by flatulent distention of the stomach, especially two or three hours after a meal, when the stomach is getting empty, and sometimes there is pain in the stomach at that time. With this flatulent distention of the stomach there are often uneasy sensations in the belly, which seem to result from flatulent distention of the duodenum or the colon.

The disorder of digestion is usually associated with other symptoms of constitutional disorder, and especially with nervous symptoms. The patient in most cases grows somewhat thinner, is weak and readily fatigued, sleeps badly, is troubled with palpitation, is irritable in temper and depressed in spirits, and often hypochondriacal in a high degree, and has, or fancies he has, deficiency of sexual power. Frequently, too, he has a wearing pain, or a sensation of uneasiness across the loins, and empties his bladder more frequently than in health—symptoms resulting probably from irritation of the urinary organs by the passage of the oxalic acid through them.

In some cases there is evidence of defective or faulty nutrition of the skin in a scaly eruption or a succession of boils.

most cases of an amber color and transparent, and of a high specific gravity. If allowed to stand in a conical light cloud of mucus may form at the bottom, but there is no deposit.

In some cases, however, together with oxalate of lime it contains an excess of urea, and is of higher specific gravity than it contains an excess of lithic acid, or of lithate of ammonia. These substances are deposited at the bottom of the glass.

The crystals of oxalate of lime are not visible to the naked eye when many of them are entangled in a dense cloud of mucus at the bottom of the glass, in which case they can sometimes be seen as small points: but may, as Dr. Golding Bird first showed us, be readily discovered by the help of the microscope. The discovery is important, because it throws light on the nature of the disease, and may determine the plan of treatment.

A disposition to such recurring derangements of the system, leading to the formation of oxalic acid in the system, may—like the gout, diabetes, and other kinds of faulty assimilation—either be inherited, or be induced, where no inherited tendency to it exists, by various conditions or habits of life.

The conditions which Dr. Prout assigned as most conducive to the formation of oxalic acid in the system, are—residence in a damp or malarious district, the too abundant use of sugar, the depressing emotions of anxiety and grief, exertion, or mental labor, long courses of mercury, excessive smoking, and all other circumstances that seriously depress the vital powers.

The indigestion, and the various other ailments that lead to a general derangement of health, are much under control.

The remedy of most efficacy, where the urine is found to contain oxalic acid, is the nitro-muriatic acid, which often prevents the deposit, and after a few days, lessens the flatulence and makes the sleep quiet and the spirits more cheerful. Twenty minims of each of the dilute acids may be given

result from faulty assimilation, and that depend principally of frame or constitution, are very liable to recur. Mineral acids should prove of service, they may be had again on each recurrence of the same disorder. When, some of the light bitter tonics may be given with attention with the mineral acids. When the first has a deposit of lithic acid or lithate of soda acids should not be given. The best for them is the carbonate or the aromatic spirit of

ment of sleep, and great nervous irritability, and much attention, the tincture of henbane, or the dilute hydrocyanic ether sedative, may be given with advantage in conjunction of the medicines just mentioned.

Medicines which the Pharmacopœia supplies. Attention of the diet is equally important. Dr. Prout, conceives the use of sugar as one of the causes of this disorder. As a rule, that saccharine articles of food, and should, as much as possible, be avoided; and that diet chiefly of animal food, and the stronger farinaceous

that the patient should abstain as much as possible from that, when he cannot abstain entirely, he should have recourse to others, sherry or brandy, properly diluted with water, however, these are too heating, and sound malt liquor, may be substituted for them.

It is also, that the patient should change for a time his residence, if he is an inhabitant of a large city, and exhausts himself by labor, country air, rest, and recreation, are often necessary to restore the health.

Part xxix., p. 98.

Digestion.—Dr. Budd gives us some very good hints respecting the medicines used in cases of dyspepsia; and first on the

Peppermint medicine increases the secretions of the stomach, before meals in cases of slow digestion—where food lies in the stomach, and there is an inability for mental or bodily exertion after meals—a kind of disorder which is especially common in middle age, or beyond it, who lead sedentary lives.

It is its efficacy in such cases to its exciting peristaltic motion, and imparting an energy to its glands. It should be given fasting, and in quantity sufficient to occasion a reticulating motion in the stomach, but without causing pain or nausea. The quantity requisite to produce this effect in persons, from a quarter of a grain to two grains. Rhubarb, ginger, and pepper, have a similar kind of effect, and may be given singly or together for the same purpose.

The best remedy for the discomfort resulting from slow digestion is cayenne pepper, with three or four grains of rhubarb. For giving medicines for the purpose in question is necessary to be taken before any other meal after which a sense of oppression is felt.

It is an efficient remedy when pain in the stomach, with secretion of gastric acid, occurs from tuberculous disease of the stomach, or from some irritation elsewhere; and in infants, where this kind of pain, with exhausting diarrhoea, results from the irritation of teething, from improper food, or from the change of diet on weaning.

Against the pain in the stomach and vomiting, that result from an ulcer and other forms of organic disease, it is only of use when the stomach secretes an unhealthy mucus, or when there is excessive or untimely secretion of gastric juice.

It is of little use in the indigestion that depends on gout, or on plethoric men.

It is of no use in the uneasiness of the stomach that results from indigestion or a scanty secretion of gastric juice.

It is best given, suspended in water, a short time before meals. Five grains, three times a day, is, in most cases, an efficient dose; but it has been given, as Odier discovered, in much larger quantity, without effect.

Bismuth may often be given with advantage with other remedies, with opium, or magnesia, or chalk—which allay pain or neutralize the excess of acid, or restrain undue secretion.

Chalk, and the *vegetable astringents*— kino, catechu, logwood—are generally given to restrain diarrhoea. It does not need to be generally known that they are just as effectual, perhaps more so, in restraining undue secretion from the stomach.

Chalk, like bismuth, from its sparing solubility, has little effect except on the mucous membrane over which it passes. The *vegetable astringents* have a more remote astringent influence. This is seen in the colliquative stage of phthisis; where, besides restraining the diarrhoea, and stopping the vomiting with increased secretion of gastric juice, that often occurs in this state, they restrain, often in a very great degree, the profuse sweating.

They seem all to have much the same effect.

The most grateful to the taste is krameria; the most efficacious is logwood. Logwood has a mawkish taste, which is best corrected by cinnamon.

Given alone, or in conjunction with soda, it is the most effectual remedy we know of for the gastralgia that is apt to occur when the stomach is empty of food, in nervous persons who have been subjected to exhausting influences; and for the vomiting that results from granular disease of the kidney.

It is of no use when pain or vomiting results from an inflammatory condition of the stomach.

It aggravates pain and vomiting when these symptoms are caused by an ulcer, or when they depend on excessive or untimely secretion of gastric acid. It often, for example, increases the vomiting that occurs in phthisis, which alkalies and the vegetable astringents will prevent.

When there is undue acidity of the stomach, it may, however, often be given with advantage in conjunction with soda or potash, when it would not be of service if given alone. The alkalies neutralize the excess of acid, and the sedative influence of the hydrocyanic acid is then exerted.

Part xxix., p. 104.

Dyspepsia, accompanied with Oxalate of Lime in the Urine.—A solid animal diet with little bread and vegetables, no fruit, very little sugar, or vegetable acid. Give the mineral acids. These do for oxalate of lime what the alkalies do for uric acid deposits. Give each acid separately. Give dilute sulphuric acid when an astringent is wanted, as in colligative perspiration, menorrhagia, hemoptysis, and diarrhoea: hydrochloric acid when digestion requires assisting. The stomach liberates this acid for the purpose of digestion. Give both this and the dilute sulphuric acid before the meals. Give dilute nitric acid when the secretion requires to be increased; it is the opposite of sulphuric acid in its action. Sulphuric acid, therefore, astringes; hydrochloric promotes digestion; nitric promotes secretion. To prevent these acids acting on the teeth, wash the mouth out with a teaspoonful of aromatic spirit of ammonia in a little water immediately after taking them. They should all be taken on an empty stomach.

Part xxix., p. 318.

Dyspepsia.—In cases of irritative dyspepsia of some standing, when the digestion is painful and imperfect, give from fifteen to twenty minims of lactic acid in half an ounce of water at meal times. Lactic acid may also be used to improve the tone and power of the stomach generally.

Part xxx., p. 59.

Dyspepsia, Atonic.—When accompanied by acidity and foul eructations give chloride of calcium, liquor calcii chloridii, one drachm three times a day, in a little water.

Part xxxi., p. 260.

Treatment of Dyspepsia.—When there is a good deal of uneasiness about the arch of the colon, or lower part of the abdomen, two or three hours after taking a meal, owing to the passage of the food over the morbidly increased irritable mucous membrane in that part, the greatest advantage will be derived from the following medicine: R Tinct. cinchon. co., ʒiiss.; tinct. calumb., ʒiiss.; tinct. nucis vomice, ʒss. M. A dessert spoonful three times a day, an hour before meals. In children a combination of soda with rhubarb will answer almost as well.

When the only symptom is *loss of appetite*, without any discomfort at the stomach, sulphuric acid, with small doses of quinine, often suits well, or the infus. gentian. co. with liquor potassæ. If there is also constipa-

tion, a mild aperient must be given daily, or it may be combined with the mixture: R Magnes. sulph., $\mathfrak{z}\text{j}$.; acid. sulph. dil., $\mathfrak{z}\text{j}$.; tinct. gent. co., $\mathfrak{z}\text{j}$.; aquæ lb.j. Sum. $\mathfrak{z}\text{j}$. ter in die.

Where the appetite is good, but there is a *want of digestion*, to restore the gastric secretion, nothing answers the purpose better than pulv. ipecac. in half-grain or grain doses, twice a day, or combined thus: R Pulv. ipecac., gr. ss-j.; pulv. rhei, gr. iij.; ext. gentian., gr. j. M. ft. pil. To be taken twice a day, shortly before breakfast and dinner.

If there be *simple acidity*, give alkalies until relieved, and afterward vegetable tonics. The following are good formulæ: R Inf. gentian. co., $\mathfrak{z}\text{ij}$.; aq. calcis, $\mathfrak{z}\text{ij}$.; tinct. hyoscyam., $\mathfrak{z}\text{j}$. M. two or three times a day. R Aq. calcis, $\mathfrak{z}\text{vij}$.; sp. ammon. aromat., $\mathfrak{z}\text{ss}$.; tinct. hyosc., $\mathfrak{z}\text{ss}$.; magnes. carb., $\mathfrak{z}\text{j}$. M. Draught twice a day.

For *pyrosis*, bismuth proves an excellent remedy. R Bismuth. ox., $\mathfrak{z}\text{j}$.; magnes. carb., $\mathfrak{z}\text{j}$.; pulv. aromat., $\mathfrak{z}\text{ss}$.; mucilag., $\mathfrak{z}\text{j}$.; t. opii, $\mathfrak{z}\text{j}$.; aq. cassiæ, $\mathfrak{z}\text{v}$. M. Take two tablespoonfuls when the pain is severe.

When the eructations are tasteless or rancid, acids do most good; the nitro-muriatic acid, with half a drop of creasote, before meals, answers well.

When there is *morbid irritability of the stomach*, prussic acid has the most decided good effect; it blunts the morbid sensibility, and may be given with bitter infusion, as the following; R Acid. hydrocyan. (Scheele's.) gtt. xvj.; tinct. calumbæ, $\mathfrak{z}\text{ss}$.; aq. font., $\mathfrak{z}\text{ijss}$. M. $\mathfrak{z}\text{ss}$. three times a day. If with the pain there be also acidity or heartburn, give: R Acid. hydrocyan. (Scheele's.) gtt. ii-ij.; sodæ carb., $\mathfrak{z}\text{j}$.; tinct. gentian. co., $\mathfrak{z}\text{ss}$.; aq., $\mathfrak{z}\text{j}$. M. Three times a day. If the vomiting be severe and continued, the following will be often found effectual: R Acid. hydrocyan. (Scheele's.) gtt. ii-ij.; creasot. gtt. i-ii-ij.; sol. morph., gtt. xx.; sodæ carb., gr. xx.; aq., $\mathfrak{z}\text{ss}$. M. In simple vomiting from atony, calumba is an admirable remedy: R Infus. calumbæ, $\mathfrak{z}\text{vj}$.; liq. potass., $\mathfrak{z}\text{ss}$.; tinct. humuli, $\mathfrak{z}\text{ij}$.; aq. piment., $\mathfrak{z}\text{ss}$. M. One or two tablespoonfuls twice or thrice a day. The next best remedy to prussic acid is nitrate or oxide of silver, $\frac{1}{4}$ or $\frac{1}{2}$ a grain three times a day. If the pain does not come on until one or two hours after a meal, Dr. Abercrombie's prescription answers admirably: R Ferri sulph. gr. ij.; pulv. aloes, gr. j.; p. aromat., gr. v. M. Three times a day.

In *anæmic dyspepsia*, the usual treatment for anæmia must be enforced. Sulphate of iron, as in Abercrombie's formula, or in pill with quinine, camphor, and ext. aloes, answers very well. Of the sympathetic affections, disorder of the heart's actions is, perhaps, the most frequent; for this the principal remedies are iron and nitrate of silver: R Arg. nit., gr. iij.; p. opii, gr. iij.; pulv. rhei, gr. xij.; ext. humuli, gr. xij. M. Ft. pil. xij. One three times a day.

In *flatulent dyspepsia*, if it be not of an inflammatory character, you will effect much good by the following: R Pulv. Gregorii, p. aromat., $\mathfrak{z}\text{ss}$. M. Half a teaspoonful twice or thrice a day, stirred in a little hot water. But you must both regulate the bowels and strengthen the digestive organs by tonics; for this purpose the following answers very well: R Assafetidæ, gr. xxxvj.; p. rhei, gr. xij. ol. cajeput. gtt. xij. M. ft. pil. xij. R Infus. chirettæ, $\mathfrak{z}\text{xj}$.; tinct. zingib., $\mathfrak{z}\text{j}$.; t. hyosc., $\mathfrak{z}\text{ij}$. M. Two of the pills to be taken every night at bedtime, and two tablespoonfuls of the mixture morning and midday. If the patient is distressed by the sym-

panitic distention, give half a teaspoonful of powdered ginger, in four ounces of hot water, and apply a hot flannel, sprinkled with turpentine, over the epigastrium. *Part xxxii., p. 85.*

Dyspepsia.—Lactic acid may be advantageously substituted for pepsine in many cases of dyspepsia. It reduces animal fibre to a pulpy state in a much shorter space of time than does the so-called pepsine. It must be of chemical purity and uniform strength. It should be taken during a meal, in doses of from half a drachm to two drachms, in infusion of calumba or a little cinnamon water.

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Pepsine, Lactic Acid.—Though lactic acid possesses no power of digestion by itself, it plays a very important part in acidifying the gastric juice, and should on that account be mixed with the pepsine given medicinally, in about the proportion of two grains of hydrated lactic acid to fifteen of Boudalt's pepsine. *Part xxxv., p. 300.*

Dyspepsia.—In excessive acidity and flatulence of the stomach, regulate the quantity and quality of the food, keep the bowels open by some warm aperient, as a pill of rhubarb or capsicum, just before dinner. To afford temporary relief, give a few grains of bicarbonate of soda, about an hour after meals. Let the drink be water, and if a stimulant be required, a little brandy or sherry well diluted. In that form of heartburn or cardialgia which occurs in nervous persons and in depressed states of the system; to afford temporary relief, give a little carbonate of soda after meals, with bisulphur, hydrocyanic acid, or morphia; but a permanent cure can only be effected by invigorating the system by preparations of valerian, iron, and quinine. If pyrosis be present, we can check it by astringent medicines, as bisulphur, kino, etc. Nitrate of silver, or nux vomica, as recommended by Dr. Budd, is very useful. If the diet has been too poor we must improve it before we can expect any change. This symptom is often accompanied by severe pain, which is best relieved by sedatives, as hydrocyanic acid, with which a little carbonate of soda may be combined. In all cases of dyspepsia no medicines can effect a cure unless great attention be paid to diet, which should consist of plain dressed animal food, chiefly roasted, and eaten slowly, with a small proportion of well-boiled vegetables. Fat, fried, baked, or stewed meats should be avoided, also pastry, salads, acid or dried fruits, pickles, fermented liquors, and rich fish, as salmon or herrings. Sedentary habits should be avoided.

Gastrodynia may occur, 1st, When the stomach is empty. This depends on acrimony of the digestive fluids; it is relieved by taking food, or by alkaline remedies, as aromatic spirit of ammonia or magnesia. 2d. Immediately after taking food; then it generally arises from chronic inflammation, or morbid irritability; or, 3d, it may begin from two to four hours after a meal; then it is generally from a similar state of the duodenum. (N. B. From the seat of the pain do not mistake it for disease of the liver.) This will be best relieved by the administration of aloes, lime-water, bismuth, and opiates, combined with rhubarb. 4th. It may occur at uncertain intervals, in most violent paroxysms, with a feeling of distention, much anxiety, and great restlessness. This depends on over-distention of the stomach, or may sometimes be seated in the arch of the colon, and is best relieved by carminatives, or by a strong injection. *Hydæææ.*

anic acid is a most valuable remedy in these cases, also opium, and le stupes should be applied externally.

A sense of fullness or flatulency of the stomach after meals will be prevented by taking a pill of four grains of rhubarb with one of castor oil before meals. If the patient loathes the sight of food, give sublingual quinine or pepsine. If the dyspepsia be accompanied by such debility and nervous irritability, sulphate of zinc, in doses of a grain, gradually increased, given three times a day, as recommended by Dr. Golding Bird will be of most value.

Part xxvii, p. 12

Subcarbonate of Bismuth.—Instead of the insoluble subnitrate of bismuth, use the subcarbonate, which is readily soluble in the gastric juice, and neutralizes the acids which are found in excess in the stomach, in which respect the subnitrate fails. The subcarbonate seems to be sensitive in its action during the first days of its employment, and subsequently to have a tonic influence. It is peculiarly suitable in cases of dyspepsia, in which the tongue is red and pointed, or the digestion laborious, and accompanied with putrid or acid eructations. In the vomiting and diarrhoea of children it is of much use. It should be given before meals, and is perfectly insipid.

Part xxvii, p. 12

Dyspepsia.—*Vide* Selections from Favorite Prescriptions, Art. "Medicines."

Dyspepsia.—Saccharated Lime.—The ordinary lime-water in itself is too weak a preparation to develop to advantage the therapeutic properties of lime. Now lime combines with sugar, forming a soluble saccharated lime, the solution of which is sufficiently strong to act as a valuable tonic and antacid. For practical use, the following is the best mode of preparation: Slake eight ounces of quick-lime; rub up with it five ounces of white sugar; add one pint of water; stir for some time, till the hard stiff mass which the sugar and lime are liable to run into are as much as possible dissolved: then filter. The product should be perfectly clear, and of a slightly yellowish tint. A solution made in this way will contain eighteen grains of lime in every ounce by weight, and altogether about one hundred and six grains of solid matter to the ounce. This may be given in doses of from twenty or thirty to sixty minims or more, in a glass of water, two or three times a day. This solution is a powerful antacid, and probably the best we have, since it is stronger and pleasanter than magnesia, and instead of weakening digestion, like the alkalis, one of its most important uses is as a tonic of the alimentary system in cases of obstinate dyspepsia. As such, its action is much more powerful than that of the vegetable stomachic tonics. It is particularly serviceable in gouty constitutions. It is not in the least constipating like chalk, but affords a very valuable means of overcoming gradually that chronic constipation which is so frequent an accompaniment of dyspepsia.

Part xl, p. 24

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E A R.

Otorrhœa—Gruber's Ear Speculum—Lapis Divinus.—In our examination of the ear we have frequently the greatest difficulty in obtaining a minute inspection of the whole of the membrana tympani. Mr. Curtis has introduced into this country the speculum used by Gruber, which differs from that of Kramer and Itard, in having the handles so made that they can be detached from the shield, which can be left in the meatus by itself. By this means the surgeon can make use of both his hands, and the speculum is a sure protection to the parts while the operator is manipulating. By the assistance of Gruber's lamp, which has a strong reflecting lens attached, by which the light is thrown powerfully into the passage and upon the membrana tympani, the condition of the parts can be more accurately ascertained than by any other means hitherto adopted. Mr. Curtis also brings before the profession a very excellent composition for curing discharges from the ear, called lapis divinus, composed as follows: "Take of sulphate of copper, nitrate of potass and alum, of each sixteen parts, powder them separately, and then mix them well together; fuse them in a glass vessel in a sand bath, and add one part of powdered camphor; break the mass into pieces when cold." Mr. Curtis uses a solution, consisting of two drachms of this lapis divinus in one ounce of distilled water; a drachm of the solution being added to six ounces of rose or distilled water constitutes the injections, which he generally uses twice a day. It is well to begin with a weak solution, and gradually increase the strength according to the effect. Then used, it acts as a mild stimulant and astringent.

Part iv., p. 102.

In deafness, owing to a relaxed and engorged state of the mucous lining of the eustachian tube, a gargle of alum produces retraction of the swollen mucous tissue—i. e., of its vessels—after which, on blowing the nose forcibly, air is found to penetrate into the cavity of the tympanum.

Part vi., p. 33.

Otorrhœa.—The following recommended as an injection :

R Creasote; Liquor potassæ, aa., one drachm; water, six ounces. M. Use frequently.

Part viii., p. 163.

Otorrhœa.—Mr. Wilde, of Dublin, has written a most excellent treatise on the causes and treatment of otorrhœa, chiefly dwelling on the affections of the external tube and external surface of the membrana tympani. There are few diseases which are more frequently neglected and carelessly treated than those of the external ear; and few which, when allowed to proceed, entail more inconvenience on a patient during the remainder of his life. In simple otorrhœa Mr. Wilde paints over the surface with a solution of nitrate of silver, ten grains to the ounce, applied with a fine camel's hair pencil, either to the whole or a portion of the surface according to the extent of the disease. This is repeated every third day, and in the interval the ear is syringed night and morning, and oftener if the discharge is copious, with plain tepid water, by means of a gum elastic bag, which, when used by friends, is much preferable to the usual piston syringe, and at night a slightly astringent lotion is dropped into the ear till it fills up the meatus, and allowed to remain there for a few minutes. For this purpose we may use liq. plumbi diacet. ʒj. to one ounce of water or rose water or weak so-

lutions of alum, copper, or chloride of lime. But otorrhoea is often exceedingly difficult to cure, owing to its being caused by morbid vascular growths, such as granulations on the membrana tympani, which are allowed to proceed undiscovered. In such a case the part appears granular and red and vascular, and Mr. Wilde recommends the application of the nitrate of silver rubbed over the part about every second day, or often if necessary; and for this purpose he uses a very neat little instrument which is five and a half inches long, consisting of a silver tube, cut spirally for three-fifths of its length, and having an aperture on the side near the extremity. In using this *porte-caustic*, a little nitrate of silver is melted over a lamp on a small platina ladle, and then, when about cooling, the end of the *porte-caustic* is dipped into it till the aperture and extremity are filled and coated over with the caustic. We often find, however, that discharges from the ear are kept up by polypi, which it becomes necessary to remove; and for this purpose Mr. Wilde recommends a little instrument, first recommended, we believe, by Mr. W. Robertson, surgeon to the Kelso Dispensary. It is a small snare-like apparatus, consisting of a fine steel stem, with a movable bar sliding toward the handle. It is constructed that a noose made of fine silver or platina wire may be passed down to the polypus, so as to surround and ensnare it. The morbid growth may thus be safely and cautiously taken away, either in part or wholly, and by the regular application of the armed *porte-caustic* from day to day, all trace of the growth may ultimately be extinguished.

Part ix., p. 16.

Extraction of Foreign Bodies from the Ear.—On this subject Mr. Chitty Clendon offers some ingenious suggestions as to the formation of the particular kind of forceps required. He says:

In the cases I have referred to, it appeared to me that the difficulty was increased by the unsuitable form of the instruments employed. In many of them the extremities of the blades were flat on the grasping surfaces and so thick and clumsy that it was difficult, even if were possible, to introduce them between the walls of the cavity and the substance to be removed; and in all of them the width of the blades increased toward the joint; the external orifice consequently pressed on them, and closed the instrument, by the time it reached the substance, and every attempt to grasp it rendered the difficulty still greater, by pushing it further on the passage. As I have given some attention to the construction of tooth-forceps, I thought I could plan an instrument which would entirely obviate the difficulties I have enumerated. The forceps I have made for this purpose pass freely into the ear, until they meet the opposing substance, and then, opening the handles, the slightly concave extremities act as dilators, and will securely grasp a substance which has previously choked up the passage; while the blades at the orifice diminish, rather than increase in width, even when open to the full extent. This movement has been seen by Sir Benjamin Brodie, who was much pleased with it, and requested to retain it, in order to have one made for his own use. It is equally well adapted to grasp a pea, a cherry-stone, or piece of candle-pencil, substances most frequently introduced by children, as large masses of indurated wax; and I think it would also be found useful in removing small polypi from the nares.

Part ix., p. 16.

Nervous Deafness.—Dr. Debreyne mentions a simple remedy for nervous

deafness, which may deserve notice. Let the patient fill his mouth with the smoke of tobacco, or of any other dry aromatic plant—sage, for example—and then make a forced expiration, while the mouth and nostrils are closed; this should be done several times in the course of the day. The smoke enters the eustachian tube, and thus produces a slight stimulant effect upon the internal ear. The remedy can do no harm; and this is saying a good deal in its favor, considering the nature of many of the means of acoustic medication. It is best suited to those cases where the deafness has supervened on some catarrhal complaint, and whenever we have reason to believe that the pharyngeal end of the eustachian tube has become thickened or obstructed.

Part x., p. 26.

Electro-Magnetism in Tinnitus Aurium.—Cautiously pass a very mild magneto-electric current from the mouth of the eustachian tube to the external auditory passage.

Part xvi., p. 109.

Acute Myringitis.—In *acute inflammation* of the *membrana tympani*, the vascularity is generally seated in the true fibrous membrane of that structure, and is usually the result of cold, and often attributed to rheumatic diathesis; sudden exposure to a low temperature, blasts of harsh cold wind, diving in the sea, foreign bodies, and irritating substances introduced into the external ear, etc. The auditory canal, and sometimes even the auricle, is engaged; and although we are not able to observe the precise pathological condition of the cavity of the middle ear, or its investing membrane, there can be little doubt but these parts, sooner or later, participate in the general inflammatory action.

The dermal structure of the *membrana tympani* also partakes of the abnormal action, and, together with that of the auditory canal, pours out a muco-purulent secretion, or even pus itself, is occasionally raised into vesicles, becomes the seat of pustules, ulcerates, throws out granulations, and becomes thickened, etc., during the progress of this disease. The true fibrous membrane passes through all the pathological changes to which such structures are liable from inflammatory action or its results; and although the precise anatomical condition of the two may not be analogous, yet the diseases of the cornea and of the *membrana tympani* bear a remarkable analogy, particularly in the subsequent appearances of vascularity, thickening, opacity, morbid deposits, etc., which they present, together with adhesions by bands of membrane to the parts within the chambers, to which they form the external boundaries.

In these cases, besides heat, pain, and slight redness of the auricle, and in severe cases heat, pain, fullness and œdema over the mastoid region, we find by examination with the speculum, that there is slight tumefaction of the lining membrane of the external meatus, with cessation of its ceruminous secretion.

The membrane also becomes swollen, and upon its surface we occasionally find vesicles, pustules, ulcers, or even small abscesses; there is exudation of muco-purulent secretion, with detachment of the cuticle; and ultimately perforation of the *membrana tympani* may take place, from rupture, sloughing, or ulceration.

Treatment.—Keep the patient in a warm room or in bed; cup from the nape, or still better, apply four or six leeches, by means of a leech-glass, immediately around and within the external meatus, having previously inserted a morsel of cotton wool; or to the mastoid region, or behind the

ramus of the jaw. Hold the ear over very hot water, medicated with osycamus, opium, belladonna, etc. Or apply a warm linseed poultice renewing it every two or three hours. In the advanced stages apply bli and dress them with mercurial ointment. Together with these men give mercury; and subsequently iodide or bromide of potassium, or Never pour any liquid, either stimulating or sedative, into the ear.

Part xvi., p.

Myringitis—Subacute.—Give mercury so as to produce a steady gradual effect, and keep the mouth sore until there is a decided amendment; give the preparations of iodine, and apply counter-irritation over mastoid process. If there is ulceration, touch the part daily with a tion of lunar caustic. To relieve the tinnitus aurium, give tincture of flower and leaves of arnica, beginning with fifteen drops of the tincture a tablespoonful of infusion of arnica, with a little cordial tincture, three day; gradually increasing the dose to thirty drops, unless headache or dizziness be produced, when the medicine must be discontinued. And for arrest of secretion of the cerumen, apply the soft brown citrine ointment in a melted state, to the external meatus, with a soft brush.

Part xvii., p.

Deafness of Elderly Persons.—It generally depends upon thickening of the mucous membrane and *membrana tympani*. When this is the case, apply the solution of nitrate of silver (from half a drachm to two drachms to the ounce of distilled water) to the meatus externus, to the extent of half or two-thirds of its length, every third or fourth day; in some cases also, apply a weaker solution (six grains to the ounce) to the *membrana tympani* itself. When there are symptoms of much congestion in the ear, apply leeches just below the meatus. If there is much irritation of the external tube, apply tincture of iodine, or an ointment composed of half a drachm of powdered cantharides and an ounce of cerate, below or between the ears, daily, or every other day. When there is relaxation of the mucous membrane of the fauces, use astringent applications. At the same time give very gentle alterative doses of pil. hydrarg., hydrarg. c. oreo hydrarg. bichlor. And let the patient take plenty of open air exercise, avoid close rooms, live moderately, and have a warm bath every week or ten days.

Part xix., p.

Deafness, from Perforation of the Membrana Tympani.—Try the pellicle of collodion, as an artificial tympanum, where such a convalescence is needed. Having got a portion of the pellicle of the required form, at its edges to the side of the meatus, by means of a small brush, armed with the collodion in solution.

Part xix., p.

Eustachian Tube—Obstruction of the.—To ascertain the condition of the Eustachian tube, it is recommended to use an instrument resembling a flexible stethoscope, one end of which covers the auricle of the patient while the other is received into the ear of the surgeon. When the instrument is applied, the patient is to make a forced expiration; and by the sound produced, the surgeon judges of the patency or obstruction of the canal.

Part xxi., p.

Meatus Auditorius—Foreign Bodies in the.—Do not attempt their removal by forceps or director, but use a syringe large enough to hold one or three ounces of water. If such a syringe is used, and the water is injected

with considerable force, the foreign body may always be removed from the meatus, and that without risk of injuring the wall of the canal or the membrana tympani.

Part xxi., p. 272.

Otorrhœa, with Perforation.—In the muco-purulent discharge which pours out in otorrhœa, if globules of air can be distinguished in it, it is a positive and unfailing evidence of an opening existing in the membrana tympani.

Part xxv., p. 261.

Treatment of Deafness by Glycerine.—[Mr. Wakley brings forward further proof of the efficacy of this remedy in certain forms of deafness. He says:]

The class of cases to which I would draw attention in this report, are those of *cuticular or epithelial thickening* of the meatus, either *partial*, affecting the membrane of the tympanum, or *complete*, being continued over the entire auditory cul-de-sac. There is a greater or less degree of deafness corresponding with the amount of thickening; cessation of the secretion of cerumen; frequently tinnitus, or a "singing and hissing sensation" in the ears, and tickling irritation of the meatus. The causes are, constitutional predisposition, advanced age, chronic inflammation, long-continued discharge following eruptive fevers and the applications of escharotics and irritants. Amongst the latter, I would mention oily preparations, the globules of which adhere to the sides of the meatus or membrana tympani and become rancid, thus producing a very frequent cause of inflammation. Upon examination of the affected ear, we find the meatus shining and inelastic, of a pearly whiteness, the membrana tympani either clouded or streaked, sometimes having small elevations upon it. The meatus is quite dry, the ceruminous glands being choked up by the epithelial growth.

The mode of application of the glycerine, when treating this state of the ear, is as follows: The meatus is well cleansed with tepid water, and then dried by means of the forceps and cotton. Glycerine is now poured into the meatus, and a plug of gutta serena, softened in boiling water, made to fit the external opening; this takes the exact form of the ear, becomes hard, and effectually prevents either the entrance of atmospheric air or the exit of the glycerine. The ear should be examined daily, and the same process repeated. The lining membrane can be examined with a blunt silver probe, passed gently through the speculum auris, to ascertain the effect of the glycerine upon the cuticular thickening. The meatus will gradually lose its shining pearly appearance, and softened pieces will fall off, and can be removed either by the forceps or gentle syringing. The practitioner should never attempt to tear them away, but allow them to come away by the means just stated. The treatment occupies ordinarily from two to four weeks, and is generally without any pain or inconvenience of any kind to the patient, and the results, in some cases, have been very gratifying. In the after-treatment the patients are directed to moisten the auditory canal at least once a week with glycerine, applied by means of a camel-hair brush; this will generally prevent a recurrence of the cuticular thickening.

The *modus operandi* is simple enough—the glycerine being kept continually in contact with the part, acts mechanically, either absorbing or penetrating the epithelial coating, and separating the individual particles. The frequent introduction of the glycerine tends to restore the external

meatus to a healthy condition, and fit it for the proper transmission of sound.

[Mr. Wakley warns us against procuring impure glycerine.]

Part XXV., p. 282.

Ear—Disease of.—Mr. Wilde gives the following:

Condyloma of the External Meatus.—M. D. L., a female, 25, suffering from deafness, tinnitus, occasional pain, fetid and sometimes bloody discharge from left ear for eight months; is otherwise healthy; attributes her affection to cold. The external meatus is completely closed by several condylomata which grow around its margin, but particularly from its lower edge. They are rather sensitive to the touch, lobulated on their surface, project a considerable distance beyond the margin of the aperture, and are a little more florid in color than the natural skin. When the tragus is pressed backward with the finger, a muco-purulent and offensive discharge exudes between these growths. It is not possible to insert even a small-sized speculum into the meatus without causing great pain and irritation. She could only hear the watch on touching. The right ear was normal. They were touched with the solid nitrate of silver, after which a poultice was applied. The subsequent treatment consisted in washing over the morbid growths with a strong solution of nitrate of silver every second or third day, and in the intermediate time keeping a dossil of fine lint, wet with diluted liquor plumbi, applied to the concha, besides the internal administration of Plummer's pill and sarsaparilla. By persisting in this treatment for upward of two months, the condylomata disappeared, leaving the meatus natural, when the membrana tympani was found unimpaired, and the hearing was restored.

I have seen a case of cutaneous cancerous ulceration, extending from beneath the zygoma, which had quite eaten away the tragus, completely occluding the external meatus; but the most common causes of the diseases are eczematous and herpetic eruptions, and chronic erysipelas.

Enlargement of the sebaceous follicles in the concha are frequently present in pale, cachectic persons, laboring under aural diseases. They are easily recognized by their dark heads, and can be pressed out with a pair of forceps.

Besides eczematous eruptions, other cutaneous diseases affect the auricle, particularly in children. You are all aware of the excoriations which take place in infants behind the ears during dentition, and of the popular belief that they are salutary. Cleanliness is their chief cure, when it is advisable to heal them up. We have a disease in Ireland so prevalent that it would appear to be one of our national maladies—*pemphigus gangrenosis*. So fatal is this disease among children, that no less than 17,799 deaths have been attributed to it in ten years; and as it is a disease very well known to the lower orders, I am inclined to think that the amount has not been exaggerated. It goes under different local names, but the most common are "mortifying hive," "burnt hole," and "black ear;" the latter from its so frequently appearing behind the ears and upon the auricles. In the Irish it is styled *ithcheadh*, or the eating disorder, from its phagedenic character. The vesicles, or bullæ, peculiar to this affection, generally leave an indelible irregular lace-like depression, similar to that of vaccination.

We meet with various other growths in the external meatus and auditory tube, independent of polypus or other morbid products, resulting from inflammation or its consequences. One of the most frequent of these

exostosis, of which I have seen very many examples. The projection generally grows from the posterior edge of the osseous portion of the tube, and slowly but gradually projects forward, so as to leave but a slight crescent-shaped fissure between it and the anterior wall of the meatus. The integuments covering such growth are generally very smooth, white and polished. I have never seen this disease affect both ears, but I have often remarked it in connection with inflammatory affections both of the external tube and the membrana tympani. We had lately at the hospital a young woman in whom the external meatus was closed by a dense membrane through which, when an incision was made, a probe introduced into the wound came in contact with the bone. As the patient had never heard in that side, and had never suffered from any aural disease in infancy, as well as from the circumstance of there being no bony meatus, we must consider that case as one of congenital defect, of which there are several similar examples on record. I have on two occasions, in private practice, seen a stricture of the auditory tube at the junction of the membranous, cartilaginous and osseous portions, in one instance so small as only to admit the round extremity of an ordinary dressing probe. Hardened cerumen having accumulated behind it, it was with great difficulty removed.

Part xxvi., p. 306.

Cause of Deafness not hitherto Described.—Prof. Syme relates the following:

W. T., aged 17, was admitted into the Royal Infirmary on account of severe pain and deafness of his left ear. On looking into it, I saw at the bottom of the tube a small white body, apparently composed of bone, but so extremely sensitive of pressure, that a satisfactory examination could not be accomplished until the patient was placed under the influence of chloroform. It was then ascertained that the growth possessed an osseous consistence, and as it did not so fully occupy the cavity as to prevent me from introducing the point of the small polypus forceps, I by this means easily effected its extraction. It was similar in size and form to the half of a small split pen, and had adhered to the side of the cavity by a narrow neck. The patient sustained no inconvenience, and immediately regained his hearing; while the pain, which had been so severe for the preceding three months as to render him unable to follow his employment, completely ceased.

Part xxvii., p. 164.

Artificial Tympanic Membranes.—In 30 or 40 cases where the membrana tympani had been perforated, and in consequence of which the sonorous undulations did not strike the tympanum with sufficient force, Mr. Toynbee, with great benefit, closed the tympanum by artificial means. To construct these artificial membranes, he used thin layers of vulcanized India-rubber or gutta-percha. The septum was passed down, and adjusted by means of a fine wire or stem of some other material. All symptoms of inflammation should be carefully reduced before they are applied.

Part xxvii., p. 165.

Simple Method of ascertaining, without the use of the Catheter, whether the Eustachian Tubes are Percious.—The common mode of exploring the Eustachian tube by the catheter produces pain and discomfort, and requires great experience in its use. The plan also of attempting to distend the tympanum by a forcible expiration, while the mouth and nostrils are kept closed, is by no means always successful.

Mr. Toynbee says: If the mouth be shut, and the nostrils be held closed by the finger and thumb, and then the act of swallowing be performed, a sensation of fullness or pressure is experienced in each ear; and this sensation does not disappear upon the removal of the pressure from the nose, but it vanishes at once when the act of swallowing is again performed, while the mouth and nostrils are open. During the first act of swallowing, a small quantity of air was forced into the tympanic cavities through the Eustachian tubes, and it therein remained until the second act of swallowing again opened the tubes and permitted the air to escape. The muscles whereby the Eustachian tubes are opened, are the tensor and levator palati, which, it is well known, take origins from the cartilaginous walls of the tubes. As, during the act of swallowing with closed mouth and nostrils, air is forced through the Eustachian tubes into the tympanic cavities, it is evident that the permeability of these tubes can be ascertained by making the patient swallow some saliva while the mouth and nose are shut. Nor need the surgeon depend upon the statement of the patient respecting the sensation of distention felt in the ears; for by listening with the *otoscope*, should the Eustachian tubes be pervious, the air will be distinctly heard to enter the tympanic cavities, and produce a gentle crackling sound.

The treatment recommended is such as shall tend to reduce the thickened mucous membrane of the guttural orifice of the Eustachian tube to a healthy state, so that their muscles may be able to open them. For this purpose, besides the use of general remedies, the solid nitrate of silver, or a strong solution of hydrochloric acid, may be applied to the mucous membrane of the fauces and to the apertures of the tubes, and gentle counter-irritation is to be kept up over the region of the fauces. By these measures, as a general rule, the mucous membrane can be reduced to its natural state, and the tubes become again opened by their muscles. Should this not take place, the Eustachian catheter may now and then be introduced and air be gently blown through it. A modification, in the shape of the Eustachian catheter, is suggested—viz., that it should be oval instead of round, the advantages derived being, that it not only can be passed through the nose with less discomfort to the patient, but its presence in the Eustachian tube is much less disagreeable, from the absence of the convex surfaces which, in the rounded catheter, press against the nearly flat surfaces of the tube. In conclusion, the author expresses his concurrence in the opinion of Harvey and Kramer, that enlarged tonsils are never the cause of obstruction in the Eustachian tubes, and that any benefit that may have followed their extirpation, has arisen from the loss of blood consequent upon the operation. *Part xxvii., p. 167.*

Treatment of Otorrhœa.—"Otorrhœa," a term which Dr. Toynbee endeavored to abolish on account of its great ambiguity, has its most frequent origin in five different diseases of the ear, viz.:

1. Catarrh of the dermoid meatus.
2. Polypi.
3. Catarrh of the dermoid layer of the membrana tympani.
4. Ulceration of the fibrous layers of the membrana tympani.
5. Catarrhal inflammation of the tympanic mucous membrane, with perforation of the membrana tympani.

Dr. T. says: The insertion of cotton-wool into the meatus, in any of the

or first-named diseases, is likely at once to aggravate the symptoms by pressing against the delicate parts, which are the seat of inflammation. In fact, any of these four affections may be produced by the irritation following the presence of a foreign body in the meatus. A patient at the present time under my care, who had been suffering for some time from chronic catarrh of the dermoid layer of the right membrana tympani, had acute inflammation induced, accompanied by severe cerebral symptoms, by the introduction of cotton-wool down to the outer surface of the membrana tympani. The most active anti-inflammatory treatment was requisite to put a stop to the irritation. In the course of a few days, the surface of the dermis, which had become of a bright-red color, and was covered with granulations, assumed the appearance usual in this disease.

The use of cotton-wool in any of the three first-named diseases, is still more irrational when, as is often the case, they are sympathetic, and are merely the result of irritation in the deeper cavities of the ear. Thus, very frequently, chronic inflammation of the mucous membrane lining the tympanum, accompanied by chronic disease of the bone, produces catarrh of the dermis lining the external meatus, the membrana tympani remaining entire, the discharge being purely sympathetic. A case of this kind, ending in death, recently occurred, under Dr. Sibson's care, at St. Mary's Hospital. I have already published a case, in which death rapidly occurred from the internal inflammation produced by mechanically irritating the meatus under such circumstances; and I have no hesitation in saying, that the introduction of any foreign substance into the meatus, in similar cases, is likely to be productive of the most serious results. Very frequently catarrhal inflammation of the dermoid meatus is a symptom of obstruction in the Eustachian tubes, and it ceases immediately that the tubes are made pervious. Such cases are, however, called cases of "otorrhœa," and the ears are filled with cotton-wool.

But if the introduction of cotton-wool into the external meatus is an irrational and unsafe proceeding in cases where the discharge originates in one of the four above-named diseases in the external meatus, its use becomes quite unjustifiable when there is a perforation in the membrana tympani, and the discharge originates in catarrh of the mucous membrane of the tympanum. After careful study of the subject for some years, and after examining a very large number of diseased specimens, the conclusion to which I have arrived is, that *the cause of death in cases of catarrh of the mucous membrane of the tympanum and mastoid cells is the retention of the discharge*; so long as there is a free outlet for the discharge, the mucous membrane does not ulcerate, and the petrous bone does not become carious. I have placed upon record a large number of cases corroborative of this important fact, and its accuracy is daily becoming more manifest, yet, in face of it, a system of treatment is recommended, which has the effect of shutting up the discharge in the tympanic cavity; for what other effect can the presence of a portion of cotton-wool in the meatus produce? Even in the use of so delicate a membrane as the artificial membrana tympani, where there is much discharge from the mucous membrane of the tympanum, I insist upon the removal of the whole of the discharge, by means of a syringe, twice or thrice daily.

In conclusion, it must be palpable to every medical practitioner that the only rational way to treat the diseases attended with discharge from the

ear, is in the first place to ascertain their cause and nature. Sometimes the affection is purely local, and the use of a slightly astringent lotion, or a solution of nitrate of silver, or the removal of a polypus, rapidly puts stop to the affection. Other cases have a constitutional cause, and it is impossible to arrest the discharge, nor is it wise to attempt to do so, until the constitutional tendency has been successfully combated.

Part xxxii., p. 111.

Artificial Membrana Tympani—New Form of.—Make a perfect mold of the meatus in wood: its end should be flat, and cut obliquely. This previously oiled, should be dipped six or eight times into a solution of gutta percha in chloroform, until a film of the thickness of oiled silk is formed, which must then be peeled off the model in one unbroken piece, and if properly made, it will fit the meatus comfortably, and may be readily removed and replaced when necessary to clean it. It should not be allowed to protrude, but cut so as to lie entirely within the meatus.

Part xxxiii., p. 112.

Erectile Tumor of the Ear cured by the external Application of the Perchloride of Iron.—[From the following case, we learn that the external application of a solution of the perchloride of iron exercises a coagulating power on the blood, even when applied on the surface of an erectile tumor.]

The tumor involved the greater portion of the external ear, and was rapidly increasing; pledgets of charpie dipped in a solution of the perchloride, were applied to the surface, and maintained with a bandage. The fluid was thus brought in contact with the irregularities of the surface; the application was changed three times a-day, and was persevered in for two months. First the tumor ceased to enlarge, then it gradually diminished in size, and when the child cried, the tumor no longer swelled out. A cure was obtained at the end of two months; the skin remained of a dark-brown color.

Part xxxiv., p. 113.

Artificial Tympanum.—The introduction of cotton-wool into the ear frequently fails to give relief, owing to its not being properly applied. Mr. Yearsley recommends a piece of cotton to be attached to a thread and drawn through a silver tube, about two inches long, so as to bring the cotton against the extremity; then wet the cotton, introduce it, and move about at the bottom of the passage until it reaches the spot at which the hearing is improved; the thread may then be let go, and the tube withdrawn.

Part xxxv., p. 114.

Eustachian Tube—Obstruction of the.—When the tympanum is healthy, obstruction of the eustachian tube from a thickened and congested faucial membrane, can in several cases be removed by general measures. The patient must take abundant and active exercise in the open air; the throat must not be wrapped up closely by handkerchiefs; flannel should be worn next the skin, and the patient should have a cold plunge bath every morning, though, if it be a young child, the body may be rubbed instead with a coarse wet towel. The most efficient local treatment is the application of the nitrate of silver. This is best applied in the solid form, and a holder can be contrived so as to be bent at such an angle that the caustic may be applied directly to the opening of the tube. Though temporary benefit is derived from the use of the eustachian

atheter, yet its effects being rather to increase the congestion, its use could be avoided. But if after a time no benefit be derived from the above general and local treatment, the catheter may be introduced once, so it may facilitate a cure by removing mucus from the tube, or by separating the lips of the faucial orifice. *Part xxxvi., p. 210.*

Removal of Foreign Bodies from the Ear.—Dr. Archibald recommends the following as a very effectual procedure: Upon the back of a circular piece of isinglass or court-plaster, two lines in diameter, a piece of thread twelve or fifteen inches long is to be attached by a very narrow strip of the same material, placed at right angles over the thread. When this is dry, a piece of muslin or cotton cloth is to be torn, two inches long, and broad enough to be rolled around both arms of the thread into a cylinder of required size and firmness. The ends of the thread should next be drawn so as to bring the plaster upon the extremity of the cylinder, around which one end of the thread may be wrapped, to keep it from unfolding. The meatus should now be freed from moisture, by means of a little lint or cotton; and the surface of the plaster should be wetted and applied to the foreign body. Adhesion will take place in five or ten minutes, and then the body may be removed with the plaster.

Part xl., p. 179.

ÉCRASEUR

Description of, and Uses.—This instrument consists essentially of a chain ligature and a constricting apparatus, by means of which it may be progressively tightened. It has been most successfully and extensively used in the removal of hemorrhoidal tumors. A strong ligature is first put round the base of the tumor; this done, the chain is applied, and made to cut its way through by gradually tightening. If the tumor completely surround the anus, an instrument, composed of six hooked branches, is introduced into the extremity of the bowel. The crotchets expand at pleasure and stick into the tumor, by which it can be well brought down, and the ligature and chain applied as before. A considerable tumor may be removed in ten or fifteen minutes, with very slight loss of blood. It has been employed for the removal of cancerous affections of the tongue, by making a small incision in the mesial line under the chin, and introducing the instrument through this. Amputation of the neck of the uterus and removal of uterine polypi have been performed with the écraseur; also amputation of the penis, circumcision, operation for the radical cure of varicocele, etc. The écraseur is greatly superior to the ligature, its action is more rapid, the pain less, there is less inflammation, less suppuration, less risk; the wound heals rapidly, and there is an immunity from many dangers attending wounds, so says its inventor, but we have reason to doubt that this is always the case. In operations involving the whole circumference of the anus there will be danger of occlusion if a pledget of lint be not introduced into the intestine, or there may be danger of stricture afterward from contraction of the cicatrix; these objections should make us hesitate to employ the écraseur for the removal of tumors encir-

ding the tumor. In many respects it is superior to the ligature, and for the removal of vascular tumors is superior to the knife, but it will never supersede either to any extent. *Part xxviii, p. 28.*

Excisor.—Mode of applying, p. 28.—The essential step in the use of this instrument obviously is to form a pedicle. If the part does not already possess one. In a flat tumor on the surface, the best plan is, if possible, to raise it well up from the subjacent tissues, and pass several long, curved needles in different directions across and under its base: a ligature must then be tied behind these, and thus a neck formed for the chain.

If the mass be very large, or if it be so bonded to the underlying tissue that it cannot be raised up, or if it extend into a canal, as into the rectum, then the chain is first carried under the part in one of its diameters, and made to split in two at its summit depth, when each lateral part is, if necessary, treated as a separate tumor, as above recommended. When the chain is firmly in its place, to avoid inconvenience, the ligature may be cut away.

A superficial incision through the skin is sometimes advisable, as it offers great resistance. Or, to save integument, it may be reflected from the sides of the tumor, before the instrument is applied. Oiling the skin considerably facilitates its action. The instrument must be used with great gentleness, at the same time it must be held firmly, which is of much moment in the avoidance of hemorrhage, for which end it must likewise be used very slowly, allowing from a quarter of a minute to a minute to elapse between each movement. *Part xxxv, p. 31.*

Ecraseur.—In Paris, many surgeons, in using the *écraseur*, substitute a soft cord of strong hemp, instead of the chain, as it is believed to cut with less contusion; and an instrument with a screw is said to be preferable to one with a lever handle. *Part xxxvi, p. 32.*

ELECTRICITY.

Therapeutical Uses of the Electric Current.—This is an agent which has hitherto been prescribed empirically, and chiefly as a last resource, when other remedies have failed. M. Matteucci, from his researches, is induced to think that paralysis and tetanus are the diseases in which it is most likely to prove beneficial.

Matteucci thinks that the electric current may be of great use in some cases of paralysis and tetanus. It is well known that an electric current, transmitted through a nerve for a certain time, destroys its sensibility. It will regain its sensibility by repose, but it has been ascertained by Matteucci that if an electric current be passed along the nerve in a *reverse* direction, the sensibility will be restored in a much shorter time. Another circumstance noticed by Matteucci is this, that if the nerve of a living animal be submitted to the passage of the electric current, renewed at short intervals, tetanic contractions are excited, and if the experiment be continued for some time, the nerves entirely lose their sensibility. These facts may be usefully applied to some cases of paralysis, and it is possible that passing the electric current in a reverse direction to the usual course of nervous

influence, may in some degree hasten the restored sensibility of those nerves which are only functionally disordered. Here, however, we must be aware that the current in nerves of sensation and nerves of motion would be in opposite directions. Again, we must remember that to continue the electric current too long would only increase the evil.

Part xi., p. 33.

New Electro-Magnetic Machine, adapted so as to give a Succession of Shocks in one Direction.—The ordinary galvanic machines have this disadvantage: they give a rapid succession of shocks, which alternate in their direction; for example, at each vibration of the armature, or at each make and break of the primary current, a shock is produced by reason of an induced or secondary one; but it happens that these two shocks pass in opposite directions; that from the make, for instance, going one way, while that from the break goes in the other, so that in effect they just neutralize their remedial powers.

[Dr. Letheby says:]

It will be always found that the break shock is felt more severely than the other, and this suggests its application to affections of the sensitive nerves; while the other may be used whenever motor action is impaired, or where the sensibility of the part is rather acute, as in the affections of the eye, etc. Another principle to be kept in view is, to pass the current in the route of the vis nervosa, that is, from the centre to the periphery, in motor paralysis, but from the extremities to the centres when the sensitive nerves are affected. If this important principle is not borne in mind, we cannot expect ever to do much good in the application of electricity or galvanism.

Part xv., p. 81.

Electrical Cloth.—A convenient form of application is by simple friction with "the electrical cloth," a species of *pyroxyline*, made by digesting cotton or linen cloth in nitro-sulphuric acid.

Part xvii., p. 289.

Electro-Galvanism.—Electro-galvanism may be considered as a stimulant to the nervous system, a stimulant to the most minute fibrille, to the most delicate nervous texture, and likewise to the neurilema, or sheath of the nerves, promoting speedy absorption, so that, should the sheath, or even investing membrane, of any nervous fibre be thickened or enlarged by extravasation, or any other means, by stimulating the nerves, promoting absorption, and removing the obstruction, the part will assume a healthy action. Sometimes chronic inflammation, or even disease, becomes established through the want of nervous energy to restore a healthy function, so as to bring the different tissues composing membranes, or even other portions of the frame, to a normal state and to a proper degree of healthy action. Such may be the condition of the parts after a sprain; the ligaments have been lacerated, the synovial membrane injured, the tendons and their thin sheaths more or less bruised, the cellular tissue distended by extravasation; and it requires a large, or an increased action of the nervous power to restore these several parts to their former condition; but, should the joints so sprained be previously in a weakened state, a larger quantity of nervous power still will be required to bring about a cure.

Electro-galvanism is an agent which produces absorption quicker than any medical means that we are acquainted with. It is early proved by its application to indolent tumors,

es

minution, and ultimately she was quite cured. Bony tumors
persed by the aid of this agent; but it may be here mention
success has attended its application after medicinal means l
viously employed. In fatty tumors no benefit has been obs
from its use; but in glandular swelling, experience has pro
it may be of the greatest service.

In cases of obstinate stricture, it has been employed with
tage, producing more speedy relief than any other means th
in our surgical treatment. Not only do these observations
stricture of the urethra, but also in some severe cases of s
rectum.

Indolent ulcers, and even scrofulous sores, frequently r
want of a proper nervous energy in the part; a want of tone
to produce a power sufficient to cause them to heal and pro
action.

Ulcers may have a modified current passed through their
even if ever so extensive; and medicinal agents may, if nee
ployed by the same means, which will produce the utmost l

In cases of sciatica, after blisters, colchicum, morphia, wa
puncturation, and where all the usual remedies have failed
electro-galvanism may be safely recommended with every
cess. A

Electricity by Induction.—Formerly electricity could not
diseased part without endangering the healthy organs, and
whole nervous system. By Dr. Duchenne's method, electricit
ized in one part, without irritating another; Dr. Duchenne ha
to call his method "Faradization," consecrating to this meth
tion the name of Faraday, who discovered the important
induction.

When the skin and the excitors are perfectly dry, and
very thick, as it is in many people whose professions

quite a peculiar character is produced, and it is not allowable to put wet excitors on the surface of the bones. When the excitors are put on the surface of one muscle, the contraction of this muscle is produced, together with a sensation, which is not peculiar to the skin, but always accompanies the electro-muscular contraction; for instance, when one acts on a muscle laid bare by a wound, and no more covered by the skin. Finally, when the excitors are put on the surface of a nerve, the contraction of all muscles animated by this nerve is produced.

There are, therefore, two different modes of electrifying the muscles—either by concentrating the electric action in the nervous plexuses or branches, which communicate their excitation to the muscles animated by them ("indirect muscular Faradization"); or by directing the excitation on only one muscle ("direct muscular Faradization"). In both ways the skin and the excitors must be wet. On the muscles of the trunk and most of the limbs wet sponges are applied, thrust in metallic cylinders, which are screwed on insulating handles. For limiting the electric power in the muscles of a smaller surface, as the muscles of the face, the interossei and lumbricals, conical metallic excitors are used, which are likewise screwed on insulating handles. These excitors are then covered by wet leather; for example, fingers of gloves.

Indirect muscular Faradization requires exact knowledge of the anatomical position of the nerves. In the arm, the electric power can be limited to the median nerve on the inner and inferior third of the humerus; to the ulnar nerve on the interval between the olecranon and the internal condyle. The radial nerve is accessible to Faradization at the junction of the two upper thirds with the lower third of the humerus; the musculo-cutaneous in the axilla. On the thigh indirect muscular Faradization is easier. The crural nerve is to be found in the groin, outside of the femoral artery; the two popliteal nerves in the popliteal space. The sciatic nerve is only accessible to Faradization on its origin in the pelvis, through the posterior wall of the rectum.

In the other parts of the body, indirect muscular Faradization becomes difficult and delicate. On the face, the trunk of the seventh pair, covered by the parotid gland, is inaccessible to electricity, whatever may be the intensity of the current. But it can be reached, where it passes out of the stylo-mastoid foramen; here an excitor is to be placed in the external opening of the ear; in this point the nervous trunk is separated from the excitor only three or four millimetres. Its branches may be excited at the points where they emerge from the parotid gland. Contraction of the muscles being under control of these branches, is the certain signal of their electric excitation.

In the supra-clavicular region, the excitors, placed immediately over the collar-bone, act on the brachial plexus. On the summit of the supra-clavicular triangle they are in connection with the external branch of the eleventh pair. This nerve, the respiratory nerve of Bell, is the most excitable of all the nerves of the human body. The lower half of the sterno-cleido-mastoid and the trapezius are very little excitable. But when a very feeble current is directed on the upper half of the sterno-cleido-mastoid, or on the external border of the upper half of the trapezius—a current, indeed, which would not be expected to produce any movement in it—at all—the head is strongly inclined to the side; or drawn up by a violent and sudden movement.

The muscles, like the nerves, do not all possess the same degree of excitability.

Some muscles are so extremely sensible, that Faradization is certainly impracticable. Electro-muscular sensibility is very lively in the muscles of the face, due to the ramifications of the fifth pair, which excite these muscles. It is important to avoid always the points corresponding to the infra-orbital and mental nerves, the excitation of which gives a very painful sensation. The most excitable muscles of the face are the frontal muscle and the orbicularis palpebrarum; the least so, the buccinator and the masseter. Of the neck, the platysma myoides is just as excitable as the upper half of the sternocleidomastoid and the external border of the upper half of the trapezius. The most excitable muscles of the trunk are the pectoralis major and the muscles of the fossa infra-scapular, chiefly the rhomboids; then follow the deltoid and the muscles of the arm. The anterior arm is much more excitable than the posterior muscles of the extremities. The most excitable muscle of the leg is the tensor vaginæ femoris.

It is quite certain that sufficiently wet exciters, in perfect contact with the skin, give rise to muscular sensation only; but at the moment when it is applied to the skin, and before the contact is perfectly established, a *cutaneous* sensation is mixed with the muscular sensation. Therefore, muscular Faradization, chiefly when applied by rapid intermissions, is much more painful at the moment when the exciters are applied to the skin. It is easy to spare this sensation to the patient. Before putting the exciters on the skin, one approaches them, so that they touch each other, and the current is neutralized. Then, when they are in perfect contact with the skin, remove the one from the other, so that the electric recomposition is effected in the muscle to be excited.

Many interesting facts have been evolved from the application of electricity to the study of the functions of the muscles of the living body. It is become possible to create so, a kind of living anatomy.

Dr. Duchenne has given a special study to the function of the muscles of the face, to know the mechanism of the physiognomical expressions. It is true, that although these muscles have a very small surface only, electricity can be localized in every one, so as to produce isolated contractions. The way to show most clearly the part every muscle takes in the different physiognomical expressions, is, to electrify the muscles of the face of a man who has just died, and whose muscles have yet retained their irritability; for the living man, when electrified, always mixes involuntary movements, not connected with the contraction of the electrified muscle, an impediment, of course, to the observation of the individual action of the muscles. It is, indeed, very interesting to see on a dead body all the physiognomical expressions produced, for it is only the muscles which are put into action by thoughts, passions, and character; they preserve, during the muscular response, the predominance of tonic force, and stamp on every physiognomy its peculiar impression. If there was not in every face tonic predominance of this or that muscle, all physiognomies would be like each other, as the muscles have the same directions, attachments, and strength, and the bones only differ from each other by their volume. So the frontal muscle, when slightly contracted, cheers up the face; more contracted it expresses doubt, surprise; in the highest degree of contraction, and united with some other muscles, it gives the expression of an agreeable surprise or of terror; it also wrinkles the forehead, and when paralyzed, the wrinkles disappear.

The *pyramidales nasi*, which are in intimate relation with the frontal muscle, and therefore considered by many anatomists as only one muscle with the frontal, in their physiognomical action too, nevertheless are the antagonists of the frontal muscle; they give a sad expression, and, when more contracted, a threatening one. It forms a striking contrast to see these two opposite movements produced in so small a space as the level of the eyebrows.

Isolated contractions of the *orbicularis palpebrarum* and *corrugator supercilii* express reflection; united to the *pyramidalis*, they express malice. The *platysma myoides* gives the expression of pain; united with the frontal muscle, it expresses terror; and, with the *pyramidalis*, rage. Contraction of the *triangularis nasi* gives the expression of lust. The *zygomaticus major* always expresses mirth, from simple smiling to the most extravagant hilarity; united with the *frontalis*, it gives the expression of an agreeable surprise; with the *platysma myoides*, the sardonic laugh. The *zygomaticus minor*, on the contrary, gives the melancholy air. The *levator alae nasi* and *labii superioris* is the real weeping muscle of children, and produces a very ugly grimace. By the contraction of the external fibres of the *orbicularis oris*, the lips are everted forward as for kissing and whistling; the internal fibres apply the lips against the teeth, as is done, for instance, by players of the clarinet for pinching the reed of their instrument between their lips. The *levator menti* is the only muscle in action in persons who repeat their prayers inaudibly in Catholic churches. The *triangularis oris* expresses sadness; in children it is the precursor of tears; in the maximum of its contraction it expresses disgust.

As electricity is able to produce muscular contractions without injuring either the skin or the muscles themselves, it may be applied, when muscular contractility is weakened or lost—namely, in muscular paralysis, whether resulting from wounds of the nerves or from lead-poisoning, or by hemorrhage into the brain, by rheumatism, by hysteries; in paraplegia, and in progressive atrophy of the muscles which terminates in their fatty degeneration.

In the *douloureux*, irritable breast, and sciatica, the most wonderful results have been obtained by the local use of electricity, and by these means the entire removal of muscular rheumatism may be fairly reckoned upon, even in protracted cases, and when all other means have failed. The tympanum has been electrified with success in nervous deafness; and in loss of smell or taste, the *Schneiderian* membrane, or the tongue and palate may frequently with success be subjected to the same process. In cases of involuntary stools and prolapsus ani, electricity may be applied to the rectum; or in paralysis of the bladder to that viscus itself. In cases of paralysis of the muscles of the pharynx, or aphonia, the pharynx or larynx may be electrified; and in cases of asphyxia from any cause, the electric excitation of the diaphragm may easily be effected by acting on the phrenic nerve as it passes over the *scalenus anticus*. By this means artificial respiration may be maintained in a body even some time after death, the air rushing into the lungs with considerable noise. *Part xxxvi., p. 248.*

day, or a drachm of the compound tincture twice a day.

Dr. Locock recommends a combination of myrrh, aloes, and the essential oil of savine.

Ergot of rye—five to ten grains of the powder two or three times a day, boiled in a little milk. In very irritable habits the medicine must be cautiously administered, as it has been found, after a few days sometimes violent and even highly dangerous and spasmodic.

Iodine, in form of tincture, with hydriodate of potash—ten or thirty drops, two or three times a day.

Strychnine—one-tenth to one-fourth of a grain, two or three times a day. This medicine must be suspended for a few days should twitching of the muscles follow its exhibition.

Madder, myrrh, guaiacum, mustard-seed, valerian, and many others have all had their advocates.

In cases of *amenorrhœa combined with epilepsy*, Dr. Anstie recommends the following formula, recommended by Dr. Bright:

R Pulv. digitalis, gr. j.; pulv. myrrhæ, gr. ij.; ferri sulphatis, gr. iij. Ft. pil. ter die cap.

"Under this treatment the fits became diminished in number, and the menstrual function normally established."

EMPHYSEMA.

Treatment of Idiopathic Emphysema.—[The subject of this case was a girl of two years and a half. She had previously had good health, but suddenly emphysema occurred, after slight sickness and fever. The state, when seen, is thus described:]

"The entire of the upper part of the body is swollen."

[A consultation was held as to the propriety of puncturing, but it was decided to wait until the effect of bleeding was seen. Four ounces were accordingly taken from a vein in the foot, it being impossible to find one in the arm. The breathing was thereby much relieved, and the swelling much reduced; the pulse could be felt, and the bowels and kidneys acted well. The after-treatment was simple; an expectorant mixture, and camphor liniment to promote absorption, and afterward slight aperients with the use of warm baths, soon completed the cure. This case is remarkable from its coming on without apparent exciting cause, the child having never had measles, scarlatina, or any affection of the chest; nor was there any typhoid state, in which such occurrence sometimes happens.]

William Hunter states he observed an emphysematous state all over the body in cattle which had the distemper. It may be asked, then, if the disease in question be not produced by accident, by violent expiratory efforts (and you are all familiar with the form of the emphysema produced during the violent expulsive efforts during labor), nor from decomposition, from what does it proceed? I answer, from secretion. On this question the words of Dr. Townsend are so very apposite, that I shall not hesitate in making use of them. He says (speaking of this morbid secretion): "That collections of air are sometimes found in the living body under circumstances where there is no appearance of their being generated by fermentation or putrefaction, and that both in man and other animals, certain tissues possess the power of secreting gas, as, for instance, the swimming bladder in fish, the mucous membrane of the stomach and intestines in man, etc." Dr. Baillie has recorded a very curious case in an adult, bearing a strong resemblance to the above, in which the emphysema was very extensive, and in which no disease or lesion near the lungs could account for it. And Frank mentions several cases from the effects of secretion, but the patients had more or less previous disease; but I am not aware of there being any case on record of the disease in question appearing in so young a subject." *Part xii., p. 74.*

Emphysema Pulmonum.—This disease, in the majority of cases occurring in our large towns, in vitiated atmospheres, and where the patient has been insufficiently nourished, is a blood disease in its origin, and is of an asthenic character. It is to be remedied by small doses of iron, quinine, and tonics, with a generous diet of animal food and porter. One grain each of sulphate of iron and of quinine may be given in infusion of roses with sirup of ginger. Dry cupping between the shoulders, the inhalation of creosote (twenty drops to a pint of boiling water) each night, a stramonium cigarette, or twelve drops of chloric ether, have all been used successfully for warding off an attack of nocturnal dyspnea. A favorite remedy also is the fumes from a slip of lighted nitre touch-paper; and a case is mentioned where a large dose of the hydrochlorate of ammonia gave great relief. *Part xxviii., p. 90.*



Mr. MacDonnell has written an interesting paper on the condition, in which he relates cases wherein one or more tumors of the surface of the chest, which, after *pulsating* for some time, become tense, and shining, and eventually burst, giving exit to large quantities of pus. When the empyema is attended with these pulsations, he calls it "*pulsating empyema of necessity*."

Case.—A woman, aged 28, of dissolute and abandoned habits, was admitted into the Meath Hospital, September 6. She had long been under symptoms of acute pleuritis for two months, for which she had been actively treated.

When admitted she was greatly emaciated, suffered from a cough on the left side, a little below the mamma; she had cough, with expectoration, and inability of lying on either side, being for the most part on the back. Her pulse was 108. The *physical signs* were dullness of the left side, commencing below the clavicle, and extending downward both before and behind; the left lateral region was likewise dull; total absence of respiratory murmur in this dull portion; the upper part of the left side, both before and behind, was clear on percussion, with bronchitic râles accompanying the respiratory murmur. The lower half of the sternal region was likewise dull, and here the sounds and pulsations of the heart were more distinctly heard than in any other situation. The whole of the right side of the chest, both before and behind, sounded clear, and the respiratory murmur was normal, and free from râle. There was no dilatation of the side of the chest at admission.

For the next fortnight there was very little change observed. On the 21st, however, the cough again became very troublesome, accompanied by a copious muco-purulent expectoration, and her breath was intolerably fetid; pulse 106, weak and feeble; respiration labored. She complained of slight tenderness a little below the sternal region; there was no discoloration or œdema of the part. On the 28th, a tumor became perceptible, *every time she coughed, in the*

about the size of an orange; it was red, shining, and fluctuating, and had a strong diastolic pulsation, which did not convey the idea of being tilted forward by a pulsating body, as occurs in the case of tumors lying on arteries; but it was of an expanding character, and in every part the pulsation was equally strong. Though frequently examined with the stethoscope, the least trace of *bruit de soufflet* was never discovered; nor had it the peculiar thrill so frequently felt in aneurisms. On the 21st she expectorated about a pint of green pus and the bowel complaint received a notable check. The tumor was still more red, tense, and pulsating, and on the following day it burst, and gave exit to about three quarts of extremely fetid pus, and she became exceedingly weak. After the evacuation of the pus, the sound on percussion assumed a clear tone. On the 24th the respiration in the right lung was again healthy, and free from r  le. The tumor had receded, the respiration in the affected side was just audible, but without r  le. All the metallic phenomena, except *tinkling* and amphoric breathing, were present, and the sound on percussion was quite tympanitic. When the aperture was uncovered a *peculiar rustling* or *whistling* noise was perceived at each inspiration. From this time she began to rally, her strength increased, the diarrhoea ceased, and the purulent expectoration diminished, and she was able to sit up all day, the pus constantly trickling from the fistula which remained open, and for the next six weeks she had periodical discharges to the amount of two or three quarts every ten days or so. At last her strength again failed, the cough increased, the pulse became quick, but she remained free from sweating. The clavicle and spine of the scapula of the affected side became gradually dull, accompanied with feeble respiration, mixed with crepitating r  les. The day before her death, which occurred on the 15th of December, a discharge of nearly three quarts of green and fetid pus escaped from the fistula.

Post-Mortem Examination.—The right lung was in every respect healthy, not the least evidence of bronchial inflammation in any part of it. On the left side of the chest being opened, the lung was found bound by adhesions to the ribs, for about two-thirds of the pleural cavity, and the remaining third, *i. e.*, between the compressed and shrivelled lung and diaphragm, was an empty cavity. The lung was also bound down to the spinal column by two strong bands of adhesion, and its inferior lobe was found red and carnified. The sac of the abscess passed behind the lung also, to a considerable distance; it was coated with a thin layer of organized lymph. The upper lobe of the left lung was the seat of numerous tubercles, beginning to soften, the anterior part of the lower lobe was healthy, but the posterior, as before stated, was solid. The fourth rib was quite carious near its cartilage, and the sixth was in a similar condition, and the periosteum covering both was in a sloughy state. Externally the integuments around the fistula were separated for a couple of inches from the subjacent muscles. The liver was enlarged to nearly half its normal size, engorged and full of blood. The intestines were examined with the greatest care, but no trace of disease could be discovered.

Mr. MacDonnell relates two cases of empyema in which the pus made its way, not externally, but into one or more of the bronchial tubes, and was removed by expectoration. The first case commenced with acute pleuritis, followed by copious purulent expectoration, two large sputa-cups of thick, yellow, "well concocted" pus being expectorated daily. The

EMPIEMA.

Diagnosis of Empyema.—We hardly need remind our readers that when serum is effused into the cavity of the pleura, the affection is called *hydrothorax*, when the effusion consists of blood, it is called *hemothorax*, when the effusion is of a gaseous nature, *pneumothorax*, and when constituted of pus and other kinds of effusion, we have what is called *empyema*, especially when the liquid compresses the lung and impedes respiration. Mr. MacDonnell has written an interesting paper on the last name mentioned, in which he relates cases wherein one or more tumors appear on the surface of the chest, which, after *pulsating* for some time, become tense, and shining, and eventually burst, giving exit to large quantities of pus. When the empyema is attended with these pulsating tumors, he calls it "*pulsating empyema of necessity*."

Case.—A woman, aged 28, of dissolute and abandoned habits, was admitted into the Meath Hospital, September 6. She had been under symptoms of acute pleuritis for two months, for which she had been actively treated.

When admitted she was greatly emaciated, suffered from pain on the left side, a little below the mamma; she had cough, with bloody streaks through the expectoration, and inability of lying on either side, being for the most part on the back. Her pulse was 108, small and rapid. The *physical signs* were dullness of the left side, commencing a few inches below the clavicle, and extending downward both before and behind. The left lateral region was likewise dull; total absence of respiration at this dull portion; the upper part of the left side, both before and behind, was clear on percussion, with bronchitic râles accompanying the respiratory murmur. The lower half of the sternal region was completely dull, and here the sounds and pulsations of the heart were more intense than in any other situation. The whole of the right side of the chest, both in front and behind, sounded clear, and the respiratory murmur was loud, pure, and free from rale. There was no dilatation of the side observed on admission.

For the next fortnight there was very little change observed: on the 21st, however, the cough again became very troublesome, and was accompanied by a copious muco-purulent expectoration, and her breath became intolerably fetid; pulse 106, weak and feeble; respiration 25, not laboring. She complained of slight tenderness a little below the nipple; there was no discoloration or œdema of the part. On the 26th a tumor became perceptible, *every time she coughed*, in the situation of pain; it was soft, and exquisitely tender to the touch, but not discolored or œdematous. On the 28th, bronchitic râles were very intense in the right lung, and those in the top of the left lung were much increased; *expectoration had become quite purulent*. When she reclined on the left side, the tumor became greatly enlarged, but receded when she lay on the right, and had a distinct fluctuation. On the 30th, the tumor extended considerably, and the expectoration was still *purulent*, and *copious*. Pulse 108, and weak.

From the 1st of October till the 15th, she suffered severely from irritable diarrhoea, and was reduced to such a state that her stools passed involuntarily. The tumor had greatly increased, and was

about the size of an orange; it was red, shining, and fluctuating, and had a strong diastolic pulsation, which did not convey the idea of being tilted forward by a pulsating body, as occurs in the case of tumors lying on arteries; but it was of an expanding character, and in every part the pulsation was equally strong. Though frequently examined with the stethoscope, the least trace of *bruit de soufflet* was never discovered; nor had it the peculiar thrill so frequently felt in aneurisms. On the 21st she expectorated about a pint of green pus and the bowel complaint received a notable check. The tumor was still more red, tense, and pulsating, and on the following day it burst, and gave exit to about three quarts of extremely fetid pus, and she became exceedingly weak. After the evacuation of the pus, the sound on percussion assumed a clear tone. On the 24th the respiration in the right lung was again healthy, and free from r  le. The tumor had receded, the respiration in the affected side was just audible, but without r  le. All the metallic phenomena, except *tinkling* and *amphoric* breathing, were present, and the sound on percussion was quite tympanitic. When the aperture was uncovered a peculiar rustling or whistling noise was perceived at each inspiration. From this time she began to rally, her strength increased, the diarrhoea ceased, and the purulent expectoration diminished, and she was able to sit up all day, the pus constantly trickling from the fistula which remained open, and for the next six weeks she had periodical discharges to the amount of two or three quarts every ten days or so. At last her strength again failed, the cough increased, the pulse became quick, but she remained free from sweating. The clavicle and spine of the scapula of the affected side became gradually dull, accompanied with feeble respiration, mixed with crackling r  les. The day before her death, which occurred on the 15th of December, a discharge of nearly three quarts of green and fetid pus escaped from the fistula.

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entire of the empyema was thus removed by expectoration, and in six weeks the patient quite recovered.

[It might seem difficult to distinguish these cases from true pulmonary abscesses, but these latter affections "are not accompanied with very copious expectoration, but, on the contrary, are found to contain an exceedingly small quantity of pus." Pneumonic abscess is, moreover, one of the rarest lesions met with in the lungs, and almost always occupies the base of the organ, while tubercular abscess is situated in the apex. The points discussed in this paper of Mr. MacDonnell are summed up by him as follows:]

1. We are presented with a new form of empyema, which may be termed "pulsating empyema of necessity," exhibiting some features common to that form of empyema and to thoracic aneurism, and encephaloid disease of the lung.
2. That it may be diagnosed from thoracic aneurism, by *a.* The history of the case. *b.* The dullness extending over the whole side, the pulsation being only felt in the external tumor. *c.* The absence of thrill. *d.* The absence of *bruit de soufflet*. *e.* The extent and nature of the fluctuation.
3. That it may be distinguished from encephaloid disease of the lungs and mediastinum, by *a.* The absence of the expectoration resembling *black currant jelly*. *b.* The absence of a persistent bronchitis. *c.* The absence of a varicose condition of the veins and oedema of the side affected. *d.* In cancer of the lung the situation in which the external tumors form, is not invariably confined to the thorax.
4. That copious purulent expectoration in empyema is not always indicative of cavities in the lung; but, on the contrary, is of frequent occurrence in this disease, and seems to be the result of an effort of nature to get rid of the purulent collection at the nearest and readiest outlet.
5. That this symptom, when it results from the above cause, is not attended with the usual symptoms either of abscess of the lungs, or inflammation of the bronchial mucous membrane.
6. That a *true* bronchitis of the sound lung frequently complicates empyema.
7. That still more frequently the sound lung becomes congested, and presents some of the ordinary signs of bronchitis and pneumonia, from both of which it may be distinguished by attention to the rules laid down in the previous part of this communication.
8. That in addition to the *depression* of the liver from mechanical causes, that organ is likewise *enlarged from engorgement with blood* in empyema.
9. This enlargement is not confined to empyema of the right side, but occurs also when the disease is seated in the left cavity of the chest.
10. That this enlargement is identical with that which takes place in other affections of the lungs and heart, where, in consequence of their functions being impaired, an additional duty is imposed upon the liver, viz.: *that of eliminating carbon from the blood*, as proved by the researches of Tiedeman and Gmelin, Elliotson and Liebig; and as occurs in the former cases, so likewise we observe in this, that the increased size of the organ is due to an additional afflux of blood, whereby its structure becomes engorged, softer in consistence, and darker in color.
11. This condition of the liver has been observed by myself as proved by dissection, and its presence detected in cases that have recovered. It has also been mentioned by many writers in their accounts of the appearances noticed at the autopsies of cases of empyema, who have recorded the fact, though unaware of its connection with the subject under discussion, and it must now be considered as constituting an additional feature in the diagnosis

and pathology of empyema. 12. This condition of the liver when it occurs in the ordinary diseases of the heart and lungs, has been observed to disappear as soon as the obstruction to the circulation of the blood and want of proper aëration, which gave rise to it, had ceased. So likewise in empyema, its disappearance is one of the first signs which indicate the removal of the effusion, and the return of the compressed lung to the performance of its functions.

Part ix., p. 1.

Paracentesis Thoracis.—Mr. Hiff observes:

Before entering upon the subject of the treatment by tapping, it may be remarked, that instances are by no means rare in which Nature gets rid of the effused fluid independently of absorption. In some, this takes place through the substance of the lung, and on this head Hasse observes, that the perforation is generally at the inferior surface of the upper and middle lobes, where the part is least compressed, the perforations being either oblong or rounded, not exceeding two or three lines in diameter, seldom more than one, and smooth at their edges. Paulus Aegineta refers to this, and considers it generally fatal. In other cases, the thoracic parietes give way; this is, perhaps, a more favorable result, though frequently a fistulous opening remains, and in some cases caries of the rib is said to follow. The situation of the opening is generally in front, and between the third and fourth or fourth and fifth ribs. A case is recorded by Hunter, where the matter pointed and burst beneath the scapula.

In very rare cases, Hasse observes that the empyema may even have perforated the diaphragm, and he refers to three recorded cases, in one of which the pus descended behind the peritonæum, along the psoas muscle, with abscesses and fistulous channels in the thigh, as low as the knee. With reference to the stage of the effusion, or time when the operation should be performed, no decided rule can be laid down; much must depend on the indication its removal is required to fulfill—viz., with reference to cure or simple relief: in the former case it is generally considered that where pus is effused and pointing, it may be evacuated at once, and where the fluid be serous, not later than five or six weeks after the commencement of the attack, generally not more than two or three weeks after.

With respect to the part selected, two chief situations are used, viz., the anterior lateral, and the posterior lateral. In the former, recommended by the ancients, and by Sharp, Laennec, Colles, and others, the opening, owing to the origin of the diaphragm, is generally not lower than between the fifth and sixth ribs, nor higher than between the third and fourth. Dr. Duncan, jun., and others, however, relate cases in which the matter pointed between the second and third ribs, while there are not wanting instances of the sixth intercostal space being selected. In the posterior lateral, practised by Lourd, Burserius, Mr. Cock, etc., the highest I have met with is between the seventh and eighth, the lowest between the eleventh and twelfth, in a case of Werner's, quoted by Burserius; this, however, is a most dangerous and almost unjustifiable situation for paracentesis.

It is not a matter of very great importance which position we select; much must depend on the physical signs; so also with reference to the instrument used, whether scalpel, oval, or flattened, or the round trocar. I think that when the collection of fluid is not very great,

down; much must be left to the discretion of the operator, depend on the circumstances of the case. In large and chronic as much may be removed as can be without the admission faintness, or irritation of any kind to the patient. The admission should, if possible, be avoided. The bad consequences of its admission owing, perhaps, not so much to its mechanical interference with expansion of the lung, as to its action on the fluid effused, changing its character from a bland and inodorous to a highly irritating liquid. Several very ingenious instruments have been invented for the prevention of the ingress of air, as the trocar, canula, and stop-cock double-action syringe of Mr. Snow, etc.; but undivided attention to the flow of the fluid through the trocar will, generally speaking, be sufficient to prevent any material entry. *Part 1*

Case of Chronic Empyema treated Successfully by Paracentesis.
this case R. N—, aged 26, was admitted into the hospital on Oct., 1847, recommended by Dr. Alison to Prof. Syme for the purpose of paracentesis thoracis. It appeared from the statement of the patient that he had labored under pleurisy, from which he never perfectly recovered. The symptoms on admission were general debility, breathlessness on the slightest exertion, with cough on attempting to move on the right side. The external appearances, with the various evidences of effusion and auscultation, left no doubt that the left side of the chest was filled with fluid, and on the right there was considerable dullness on percussion over the whole anterior surface; but particularly great over the sternum and mamma downward, the heart occupying this position. The respiration, except in this part, being very clear and puerile. It was considered that paracentesis, cautiously performed, held out a fair prospect of recovery, Mr. Syme, on the 31st of October, drew out 503 of a greenish colored pus, on the 7th of November, 503, of a similar fluid was removed, and on the 14th, 343, the chest being now apparently empty. The instrument employed was a trocar about the eighteenth of an inch in diameter, and about two and three-quarter inches in length. The points selected for puncture were different points between the third and

patient now appeared at different times to have the operation of paracentesis performed. On the 8th of July, 793 of pus were removed; on the 30th of September, 1123; on the 1st of February, 1848, 723 were withdrawn; and from this period up to the 4th of January, the operation was performed four different times, draining off on the 18th of May, 1848, 73; on the 19th of August, 1848, 373; on the 27th of February, 1849, 73; and on the 4th of January, 1850, 283.

Thus he was operated on twelve different times, and in all 6213 of pus—equal to about four gallons—were taken from him.

This patient finally recovered from the affection, and attained to the enjoyment of good health. *Part xxii., p. 153.*

Empyema.—You may inject a solution of iodine into the pleural cavity. The following formula was successful:

Iodini 5j.; potassii iodid. 3ij.; spirit. rectificat. 3j.; aquæ 3v. M. Let his injection remain in the pleural cavity a short time, moving the patient about so as to bring it into contact with all the pleural surface, and then let out as much as will flow out. The greater portion, however, will remain in the cavity. *Part xxxi., p. 85.*

Empyema and the Danger of Paracentesis.—Nature, if assisted by proper remedies, as mild diuretics, composed of digitalis and squills, with alteratives and large blisters to the chest, will often remove serous effusions from the pleura.

Dr. Addison now believes, from the numerous cases seen every year at Guy's, that paracentesis thoracis is one of the worst and most deceiving operations in general practice. A serous cavity, he thinks, is almost invariably changed into a cavity pouring out purulent matter by the first operation, and the thick, leather-like false membranes lining the pleura, soon make the operation one of very great difficulty and danger. Nature, herself, if assisted by proper remedies, as those already indicated, will often remove serous effusions from the pleura; but if once interfered with by instrumental assistance, the amount of pus separated from the system is almost incredible, and beyond her power to get rid of. Cases are mentioned of twelve and fourteen pints of purulent matter drawn from the chest, but its production is very possibly due to the first opening made in the pleura.

During the post-mortem examination of a case in the dead-house, Dr. Addison drew the attention of his class to the roughened and thickened condition of the adhesions lining the pleura, those being not at all unlike softened leather or half-boiled tripe. This was also a great obstacle to the right performance of the operation of paracentesis of the chest, an obstacle of the most serious import sometimes in private practice.

Dr. Addison further related a case in which he had been called to see a gentleman whose pleura was full of fluid; it was at a time that, guided more, perhaps, by the fancies of new books than by experience, he was led to believe paracentesis a good operation for lessening dyspnoea and relieving the most urgent symptoms of extensive effusion into the pleura. The trocar and canula were boldly pushed into the chest; but nothing followed. It was then decided in consultation that the contents of the pleura were "too solid" to come out, and nothing more was done. The patient died some time afterward, the effusion and dullness having remained still unchanged, and on the post-mortem table the same operator tried the

operation again, but it was of no use. The chest was then opened, and was found to contain some quarts of fluid, but the leather or trapezoidulations inside the ribs were found to have closed up the cavity, and pushed themselves before it like a valve. Even the lung may be so bound down by these thick membranes as not to be able to expand again. The dangers of the operation are to be considered of such a serious nature, that they are by all means to be avoided. *Part xxxiii., p. 100*

ENURESIS.

Treatment of Incontinence of Urine in Children.—The late Bas Dupuytren, and also MM. Baudeloque and Guersan, have recommended the use of cold shower-bathing as one of the most effectual means against this most annoying and frequently most obstinate complaint.

M. Lallemand, of Montpellier, has great confidence in aromatic vapor, to which a small portion of brandy has been added, followed by friction of the loins.

Underwood recommended the use of sea-bathing, of dry cupping, of blisters on the sacrum, and of electricity.

As internal medicines the Spanish fly and the nux vomica have been unquestionably the most efficacious. The preparation of the latter, which has been most successfully used, is the extract in doses of from half a grain to four grains in the course of the day.

Case.—A girl, twelve years of age, had been affected from her infancy with incontinence of urine, her general health being unaffected all the time. It would seem that no remedial means had ever been tried.

Dr. Ramange, who accidentally saw the girl at a house where he was visiting, recommended her to take one of the following pills, along with a wineglassful of infusion of quassia, three times a day :

R Extracti nucis vomicæ, gr. viij. ; Oxydi ferri nigri, 3j. ; Pulv. Quassie 3j. sirupi absinthii, q. s. In pilulas xlvij. divide.

A tonic nourishing diet was ordered, and also a glassful of wine three times a day. By persevering in this course for a month, the patient was quite relieved from her distressing malady.

The treatment was however, continued for another month; and at the date of the report there had been no return of the complaint for upward of a year. *Part. I., p. 10*

Incontinence of Urine.—Tincture of cantharides, combined either with tincture of opium or tincture of hyoscyamus, recommended; also a compound rhei pill, *pro re nata* and blisters to the sacrum. *Part vi., p. 10*

Treatment of Incontinence of Urine.—Dr. Steinbeck, of Brandenburg, administered ergot of rye to two women recently delivered, in whom incontinence of urine had been induced by paralysis of the sphincter of the bladder from pressure during labor. The internal administration of this medicament, coupled with the external use of an embrocation containing tincture of cantharides over the hypogastric region, having been followed by complete success in a few days, Dr. Steinbeck entertained the idea of

employing the ergot for similar affections in the other sex. Accordingly, in three old men, in whom sudden chill had brought on incontinence of urine, he prescribed the following mixture: R Ergot of rye, half a drachm; water, six ounces; boil for five or six minutes, and add of belladonna leaves fifteen grains. Suffer the infusion to stand till cool; strain, and add of phosphoric acid (medicinal strength), two drachms, extract of nux vomica, four grains, sirup of manna, one ounce. Mix, and take a tablespoonful every two hours. The patients improved in health and after a few days the above mixture was superseded by the following: R Extract of belladonna, three grains; extract of nux vomica, four and a half grains; phosphoric acid (medicinal), an ounce. Mix and take fifteen drops three times a day. The treatment in each case was successfully concluded by a course of tonic with stimulant remedies.

Part vii., p. 89.

Incontinence of Urine—Nitrate of Potash.—Dr. Young has found that this medicine, given in ten-grain doses every three hours, has had a very excellent effect in checking this troublesome affection. In several cases where tinct. lyttie and other means had failed this medicine was given with complete success. He supposes that its good results may be owing to its increasing the irritating properties of the urine, thus making it more stimulating to the bladder or its sphincter. If so, he also thinks that other preparations of potash, soda, etc., may be used when the nitrate fails.

Part viii., p. 75.

Enuresis Cured by Electricity.—In many cases, these affections have been referred to affections of the spinal marrow; but M. Froiep refers it to a local affection of the bladder itself, to an affection of the nerves, or of the muscular fibre, or of both. Taking this view of the question, he resolved to try the effect of the local application of electricity. A metallic stylet, terminating in a button point, is introduced into the bladder, with the aid of a gum catheter, which envelops the whole but the button point. The handle of the stylet is then connected with one of the wires of an electro-galvanic battery, while the extremity of the other wire is pressed against the pubes. The electric current is passed through the bladder for a quarter of an hour each day. The bladder in general retains the urine better the very first day after the application; but the application requires to be renewed at intervals, till the bladder recovers its full power. Several cases are related of this affection, in people of from 20 to 40 years of age, in whom the affection was completely removed by the electricity.

M. Froiep found that, in weakly children, a few doses of iron confirmed the cure.

Part ix., p. 83.

Incontinence of Urine.—Mr. Chabrely recommends the use of balsams in this troublesome affection. Here are a couple of his prescriptions:

R Stryax balsam, 6 grammes; Peruvian balsam, 6 grammes; honey, 90 grammes; powder of gum arabic, q. s. to make an electuary, of which a tea-spoonful is to be taken night and morning.

R Stryax balsam, 6 grammes; balsam of tolu, 8 grammes. M. and divide into pills of 30 centigrammes (5 grains), which are to be silvered over and rolled in lycopodium powder. From four to eight of the pills to be taken daily.

The patient is at the same time to make use of tar water by way of ptisan. *Part i., p. 62.*

Enuresis Nocturna, Nitrate of Potass, Benzoic Acid, etc.—Dr. Young was the first to make known to the profession the efficacy of nitrate of potass in enuresis nocturna. He succeeded in curing a lady in a week's time, by giving it in doses of gr. x. every three hours. Dr. Delcour, of Belgium, has met with equal success. He gives it to children from four to twelve years of age, in doses of gr. x. three times a day; in some cases it succeeds immediately, but in most requires a few weeks; where this fails, he gives strychnine. In one or two very obstinate cases, where even this latter failed, he has succeeded by the use of benzoic acid in the form of pill, each containing gr. iij. of the acid; one to be taken twice or thrice a day. *Part xi., p. 62.*

Incontinence of Urine in Children.—Incontinence of urine in children has been observed by Dr. Berenguier to have some connection with intermittent fever, being apparently a symptom of the debility which accompanies the characteristic anæmia of malarious districts. The most appropriate treatment was found to be a combination of copaiba, laudanum, and the protoxide of iron, made into pills.

Belladonna has been also used successfully in this disease by Dr. Morand, in the dose of one-fifth of a grain of the extract taken twice a day, and increased at the end of a week, if no effect be produced. *Part xvi., p. 104.*

Incontinence of Urine.—Excoriation of the parts exposed to the flow of urine may be prevented by the application of collodion, and may probably also be cured by the same means. *Part xix., p. 224.*

Portable Urinal.—Dr. Gariel has availed himself of the remarkable properties of the vulcanized caoutchouc (its unalterability by corrosives, its preservation of elasticity at all temperatures, its great strength, and its resumption of its original size after however great extension), for the construction of a vast variety of surgical apparatus, some of which exhibit great ingenuity.

One of the most simple of these is a portable urinal, which is of such a trifling size and weight as to cause no inconvenience or ill appearance. The penis is adapted to the orifice of this, just as the wrist is to the India-rubber band of a glove, and the material being impermeable, no small issues. When opportunity offers, without displacing the vessel, the patient discharges the collected urine by means of a little cock attached to it.

Part xxi., p. 208.

Incontinence of Urine.—In a case of this kind, which had lasted for five months, from paralysis of the neck of the bladder, after the internal administration of strychnine had failed, a solution was injected into the bladder (0.50 centig. of strychnine to 500 centig. of water). Complete recovery was the result. *Part xxvii., p. 104.*

Treatment of Enuresis.—As it is often desirable to have at hand various formulæ for the treatment of this troublesome affection in children, we may mention that Dr. Blaschko, of Freyenwalde, recommends a mixture of equal parts of *tinct. nucis vomicæ* and *tinct. ferri acet.*, of which from 10 to 15 drops are given twice during each evening. Dr. Hüber, of Zürich, recommends *ext. nucis vom.* 1 p., *oxyd. ferri nigr.* 48 p., giving

grains night and morning. Nägele gives 1 grain of tannin night and morning.

* * * * *

Use of Cubebs in Infantile Enuresis.—This author has found cubebs more effectual than any other remedy in curing the incontinence of urine so common among children. This complaint may depend on atony of the bladder, or on the presence of intestinal worms. In the former case, the cubebs acts as a tonic; in the latter, as a valuable anthelmintic. The medicine requires to be given in considerable doses; two pinches (*i. e.* a few grains or *zwei messerspitzevoll*) for infants, and half a teaspoonful twice or thrice daily for children of a somewhat more advanced age. Its effect is speedy and permanent; and although occasionally it happens that during its administration the incontinence returns at periodical or irregular intervals, these occurrences gradually become less frequent, and eventually disappear altogether. To effect a radical cure, the author has often found it necessary to continue its use for a period of from three to eight weeks, and he has never observed any injurious effects from its administration.

Deiters observes that he has found the same remedy most efficacious in checking nocturnal emissions in cases of spermatorrhœa.

Part xxxi., p. 102.

Incontinence of Urine in the Aged.—When not owing to diseased prostate, but probably to want of tone in the bladder, give the following: tinct. ferri sesquichlor. ʒij.; balsami copaibæ, ʒj.; strychniæ, gr. j.; infus. quassie, ʒxij. M. fiat mistura cujus sumatur ʒj. ter die.

Part xxxi., p. 168.

Galvanism in Incontinence of Urine.—When incontinence of urine in children results purely from atony, and is not the result of irritation from urinary causes, apply galvanism by the aid of a catheter in the bladder. It has proved satisfactory in the hands of Mr. Simon. *Part xxxvii., p. 165.*

Belladonna in Incontinence of Urine.—A case lately occurred to Mr. Pollock, of St. George's Hospital, strikingly illustrating the efficacy of belladonna in incontinence of urine. The patient was a boy, aged 10; all the usual remedies had failed, no stone was detected, and the urine was apparently healthy. He was ordered one-twelfth of a grain of extract of belladonna three times a day, and five grains of calomel and scammony twice a week. The belladonna produced an immediate effect, marked improvement being noted even after the first dose. After rather more than a month's attendance, he was discharged quite cured.

Part xxxvii., p. 272.

Incontinence of Urine—Excoriation from.—In cases where, owing to incontinence of urine from any cause (as vesico-vaginal fistula), there is distressing excoriation of the skin, a mixture of zinc ointment and glycerine is the application generally used at the Samaritan Hospital.

Part xxxviii., p. 162.

bowels. Blood-letting may here be carried to a greater extent, as, in the early stage of enteritis, there is less strength and less disposition to sinking. Leeching should be resorted to, and also poultices and fomentations. When the attack is recent, Dr. C. J. B. Williams recommends the bowels be evacuated *before* the antiphlogistic treatment; when the inflammation has existed for some time, it is better to begin with antiphlogistic treatment *first*, and follow this with a sufficient evacuation, which he regards as the best aperient in such cases. Five to ten grains of calomel, combined with five grains of little James' powder, and if this does not answer in three hours, repeat the dose. Belladonna may be combined with the calomel of the enema. If this second dose fail, it is better to give castor oil, three or four drachms, mixed with the yolk of an egg, which will frequently occur where these measures will fail in procuring evacuation. Dr. Williams recommends very strongly the use of opium. A scruple of tobacco may be infused in half a pint of water, and the infusion may be retained for ten minutes.

In combination with this antiphlogistic treatment, turpentine may be used with success. Frequently it happens in this disease that there is a great deal of spasmodic action, but whether so or not, turpentine does not appear to be so injurious a medicine in this inflammation as one might be led to expect.

Sometimes it is used in peritonitis, under the supposition that it is antiphlogistic. At any rate, in the form of an injection it does relax the spasm.

The greatest exertion should be employed to open the bowels; when this is effected a great part of the battle is gained; we should then look to this object, and not be content until it has been effected. If remedial measures must be repeated again and again, and the bowels have been freely opened, then becomes the time for opium. It is more efficacious and safer than any other, and it may be administered in

It frequently happens in enteritis that, besides tympanitic distention and obstruction, in the early stage, there is a hardness in some parts of the abdomen, a feeling of induration communicated to the touch. Usually, however, there is great soreness and tenderness felt, more commonly in the iliac region than elsewhere. Dr. W. thinks that this must be the result of the internal thickening of the intestine; and so long as it lasts there is a great tendency to a recurrence of the obstruction; and it is necessary to be extremely careful to administer medicines from time to time to keep up the regular action of the canal. The best medicines for this purpose are castor oil or mild salines, as sulphate of potash and sulphur. Castor oil is the safest of all medicines. It is of very great consequence, after an attack of enteritis, to avoid exertion too early, and particularly to avoid any error of diet and the use of any irritating medicine. The great reason of this precaution is that there is a considerably impaired state of the functions of the canal, and so long as this is the case, all irritating things tend exceedingly to produce a relapse. The diet should be as plain, mild and simple, as possible; chiefly consisting of farinaceous articles of food.

Part x., p. 63.

EPILEPSY.

Oxide of Silver.—Suggested in the treatment of epilepsy as a substitute for the nitrate of silver.

Part ii., p. 35.

Sulphate of Zinc.—In most of those cases of epilepsy which depend more on a functional than organic change, Dr. Babington has found that a tonic mode of treatment is the most successful. In some cases, where the habit is gross and circulation forcible, depletion may be called for; but generally, in the tic douloureux, and other spasmodic states of the nerves of motion and sensation, dependent on nervous irritation, the opposite treatment may be useful. Sulphate of zinc is his chief remedy. In one case, the patient was enabled to take 36 grains three times a day for several weeks without producing any sickness. In another case, he gave the zinc till 5ss. was taken three times a day, and was then diminished to ten grains to a dose. The fits entirely disappeared from the commencement of the treatment. In other cases he gave two grains three times a day with similar success. He then says:

It is a general belief that sulphate of zinc excites less nausea in the form of pill than in a liquid state. I find the difference to be scarcely appreciable; and as it is often desirable to increase the dose to an extent which would make it inconvenient in the form of pills, I frequently prescribe it in solution. It is soluble in two parts and a half of cold water; so that the dose is not inconveniently large, whatever number of grains it may be desirable to administer. I have frequently seen epileptic patients benefited by other tonics; as, for instance, by preparations of iron, by nitrate of silver, and by powdered mugwort-root. In so intractable a disease, we are often obliged to vary our remedy, the principle of treatment remaining the same.

Part iii., p. 21.

Croton Oil.—From several remarkable cases of epilepsy, sciatica, &c.,

fits soon abated, and the patient ultimately recovered. chiefly benefited in which there is "some irregularity of circulation." Those cases in which there is organic disease of the brain or its meninges, were not much benefited by the oil.

Compression of the Carotid Arteries.—Recommended in other convulsive affections.

Chloride of Silver.—Recommended by Dr. Perry, of the Hospital. In epilepsy, three grains given four or five times a day produced effects similar to those of nitrate of silver, but more

Oxide of zinc.—The good effects of oxide of zinc in cases resembling epilepsy are brought forward in a case by Dr. Green, who gives it in two grain doses twice a day; the doses to be gradually increased to ten grains every day. In the case which Dr. Green relates to, the fits were at last given with great success. The fits which frequently before this, now disappeared, and did not return when the medicine was discontinued; on resuming the medicine, the fits again appeared at first.

Hydrocyanate of Iron.—M. Janson has for some time been giving the hydrocyanate of iron in cases of epilepsy with success; and especially in cases which he calls *nervous epilepsy*, distinguished from *organic epilepsy*. He gives it in doses of half a grain three times a day, and morning, gradually increased to ten grains for a dose, and to persevere in it for some time.

Ice to the Spine.—We need not remind the practitioner that it is to keep in view correct principles in the treatment of epilepsy, which are *symptoms* of disease, and not the disease itself, that it is particularly necessary to ascertain their cause. Convulsions can arise from some affection of the medulla oblongata, or spinal cord, or

Ioduret of Silver.—Dr. Patterson has advised that the *ioduret* of silver be used instead of the nitrate, which he states to be equally efficacious and free from all risk of discoloration, however long continued. His theory is, that the discoloration is most probably owing to the decomposition of the chloride of silver circulating in the cutaneous tissue through the chemical action of the sun's light, and the deposition there of its *metallic basis*—and, therefore, he thinks if we can procure a preparation of silver which cannot be acted upon by chlorine nor by the sun's light, we shall be in the possession of a perfectly safe medicine: such he esteems the *ioduret*.

The following is the formula:

R Iodureti argenti, nitratis potassæ, ana, grana decem; tere simul ut fiat pulvis subtil., deinde adde pulv. glycyrrhizæ, ʒss.; sacchari albi, ʒj.; mucil. arab. q. s. M. fiat pil. xl., quarum æger sumat unam ter in die.

It is stated in systematic works on chemistry, that all the iodides are decomposed by chlorine. This is not true of the iodide of silver; at least, neither strong nor dilute muriatic acid, nor solution of muriate of soda, has any effect on it.

Part vi., p. 11.

In cases of *amenorrhœa combined with epilepsy*, the following formula is recommended by Dr. Bright:

R Pulv. digitalis, one grain; pulv. myrrhæ, two grains; sulphatis ferri, one grain; sirupi, sufficient to make a pill. Take three daily.

Part vi., p. 80.

The *instantaneous application along the spine of a burning match*, suggested to avert, in cases of the *aura epileptica*, the invasion of the epileptic fit.

Part vi., p. 86.

Digitalis in Mania and Epilepsy.—Dr. Sharkey gives an account of some cases of idiopathic epilepsy, in which very large doses of digitalis had produced excellent effects; and he has since met with cases of mania combined with the former disease, in which the same large doses of this medicine were equally beneficial. In the case of a young woman of twenty-seven, who had been the subject of attacks of idiopathic epilepsy from childhood, followed by mania, Dr. Sharkey gave ʒij. of the tincture prepared from the fresh leaf, after the woman had been attacked with one of these fits of mania for three days. She had been sleepless for three days and nights, and talked incessantly; she had taken no food or drink during this time. On the night after this dose of digitalis she slept soundly, awoke composed, and made a hearty breakfast. She continued to do well.

Part ix., p. 66.

Indigo and Digitalis in Epilepsy.—[The foxglove has from time immemorial been administered for epilepsy in the rural districts of Ireland. In many instances, success has followed on its exhibition, but the effects have been so violent, from the quantity administered (the formula is ʒiv. to the pint of water, a quarter of this for a dose) that the profession has shrunk from using it. Sir P. Crampton, however, informed Dr. Carrigan, in 1828, that he had cured three cases out of four by it, though he did not venture beyond the first dose.]

Preference is given to the infus. digitalis of the Dublin Pharmacopœia.

The greatest object of medicine is said to be the removal of the cause, and the relief of the symptoms.

The first object of medicine is to remove the cause, if it be known, and to relieve the symptoms, if it be not known. In the case of epilepsy, the cause is usually unknown, and the symptoms are the only objects of treatment. The symptoms of epilepsy are convulsions, which are usually preceded by a prodromic period, and are followed by a period of unconsciousness. The convulsions are usually of the tonic character, and are accompanied by a strong contraction of the muscles. The prodromic period is usually of short duration, and is characterized by a feeling of uneasiness, and by a feeling of impending danger. The period of unconsciousness is usually of short duration, and is characterized by a complete loss of consciousness. The symptoms of epilepsy are usually of a paroxysmal character, and are usually of a tonic character. The symptoms of epilepsy are usually of a paroxysmal character, and are usually of a tonic character.

The second object of medicine is to remove the cause, if it be known, and to relieve the symptoms, if it be not known. In the case of epilepsy, the cause is usually unknown, and the symptoms are the only objects of treatment. The symptoms of epilepsy are convulsions, which are usually preceded by a prodromic period, and are followed by a period of unconsciousness. The convulsions are usually of the tonic character, and are accompanied by a strong contraction of the muscles. The prodromic period is usually of short duration, and is characterized by a feeling of uneasiness, and by a feeling of impending danger. The period of unconsciousness is usually of short duration, and is characterized by a complete loss of consciousness. The symptoms of epilepsy are usually of a paroxysmal character, and are usually of a tonic character.

Part III. p. 21.

Epilepsy with the urinary system.—The patient was a healthy-looking woman, of middle age. She had been subject to epileptic fits if an approximate number of years, and to months. She was subjected to a variety of treatments, and the disease appearing of a hereditary character. He had no previous epilepsy, and he never suffered from secondary symptoms, which sometimes, however, coming on, he was ordered inside of epinephrine, which was given a day, and the weakness of the mouth, which had previously been noticed, to be kept up by time pill. Under the treatment, the urinary system and epileptic paroxysms disappeared together.

Part IV. p. 21.

Secondary Epilepsy and Apoplexy in Children.—One of the most frequent effects of infant convulsions, according to Dr. Cooley, is convulsion of the muscles of the extremities, accompanied with more or less suspension of the function of the brain and interruption to the process of inspiration. We find, during the paroxysm, in general, a remarkable dilatation of the pupils, a pale and contracted appearance of the face, and a comparatively cold state of the skin, which is cooled by temporary warmth and copious perspiration, the result of continued involuntary muscular action. This epileptic attack is usually preceded some hours by a shrill scream, and when this occurs, a convulsion of the adductor muscles of the eye, constituting squinting, succeeds, and the case is apt to terminate in apoplexy. As the cerebral disease advances from a state of congestion to that of inflammation, effusion of serum, accompanied with symptoms of apoplexy, follows. The convulsion of the voluntary muscles is now interrupted by stupor and insensibility, and the sphincter muscles, and those of deglutition, become paralyzed. Stertorous and irregular respiration follows, and the capillary circulation partaking of the general enervation, animal heat is no longer generated, and the surface becomes inanimate and cold, and is covered with universal exudation.

Caution is enjoined in the use of bleeding and the administration of calomel, as these increase the tendency to nervous effusion which is usually

present in this disease. The best plan, when the face is pale and the skin cool, is to give digitalis promptly. *Part xv., p. 68.*

Treatment of Epilepsy.—According to Dr. M. Hall, the indications are to relieve all gastric, enteric and uterine irritations, by emetics, enemata and emollient vaginal injections; prevent all mental and bodily excitement; to not suffer the patient to sleep too deeply, nor to be suddenly disturbed; and order simple and nutritious diet, cold sponging and friction, and fresh air and exercise. Watch the patient narrowly, when an attack is threatened; if the paroxysm approaches, dash cold water in the face; and if the fit comes on raise the head, expose the face and neck to the air, and dash cold water in the face to excite a forcible inspiration, by which the larynx may be opened; apply spirit lotion to the head, and warmth to the feet; and guard the patient against accident. *Part xvii., p. 38.*

New Remedy for Epilepsy.—This remedy is the expressed juice of the cotyledon umbellicus.

The plant may be used as long as the leaves remain green and succulent, and every part of it be employed for the expression of the juice, with which the leaves, however, are the most abundantly supplied.

Give an ounce of the expressed juice, or half a drachm of Hooper's inspissated juice, twice a day, and continue its administration for a length of time.

In collecting the leaves of the cotyledon umbellicus, care should be taken not to confound it with an umbelliferous plant, the marsh pennywort (*hydrocotyle vulgaris*), which it somewhat resembles.

A view of the entire plant, and a knowledge of the locality in which it grows—the cotyledon always being found in very dry, and the hydrocotyle in moist places—will be conclusive. *Part xix., p. 56.*

Use of Cotyledon Umbellicus in Epilepsy.—Dr. Bullar says that those patients and those practitioners who are not disposed to give the medicine a long, patient and steady trial, will be disappointed.

When, with an excitable nervous system (or without it), there is a yellow eye, foul tongue, turbid acid urine, fetid and disordered secretions from the bowels on giving medicines, it is essential to purify the blood and fluids by a course of appropriate gentle aperients, which, acting like mineral waters, keep up a relaxed state of the bowels without exhausting, and, together with strict attention to food, air, exercise and habits, restore the general health—a step usually necessary before any specific remedy will act satisfactorily. It is too well known that setting the general health to rights will not alone cure epilepsy, but no remedy can be available if this step is neglected.

In children, and especially boys whose general health is good, it is advisable to begin with a few brisk purgatives of calomel and scammony, followed by castor oil, to ascertain if the fits do not depend on worms. And in young men the state of the urethra should be inquired into, as an irritable urethra, attended with involuntary seminal discharges, may be one cause of the fits, and unless relieved by the use of the bougie, may render any other means abortive.

The doses may be thus stated: Fresh juice, one ounce, or, Hooper's inspissated juice, half a drachm, twice daily.

I avail myself of the present opportunity to state that this (May) is the

Dr. Todd remarks: "The long continuance of a state of paralysis is always calculated to excite anxiety in the friends and attendants of the patient, and to create fear lest some extensive mischief shall be done to the brain. In this case there were two circumstances, others which greatly encouraged me to believe that no serious lesion existed in that organ. The first of these was, that it was accompanied with convulsive fits. Now you will not understand that I do not apprehend danger from such paroxysms of this man has had; but that, when epileptic convulsions and apoplexy come together, and where there is no hemiplegic paralysis, we have of presumptive evidence that there is no apoplectic clot, or other lesion likely to damage the brain permanently. Thus we ascribe both the coma and epilepsy, not to the pressure of a tumor within the brain, but probably to one and the same cause, which is suggested by the second circumstance to which I have referred, that his urine was scanty in quantity, and highly impregnated with uric acid.

"Thus I viewed the case as one of those in which the coma was due to the presence of some irritating matter in the blood, which ought to be eliminated by the kidneys. There are very good reasons for believing that urea in the blood is capable of affecting the system to cause coma and convulsions. Other substances retained in the blood may produce the same effect, for aught we know; and coma and convulsions may occur in cases where we have no evidence of the presence of urea in the blood; but it is quite as certain that the kidneys fail in their action to secrete only an ounce or two of urea the day, instead of thirty or forty ounces, coma and convulsions are apt to ensue.

"To prove the presence of urea in the blood, take the serum, evaporate to dryness over a water-bath, then add alcohol, which dissolves it out. Evaporate this alcoholic extract to dryness, mixing with a little water, so as to make a spongy mass, add a few drops of nitric acid; if urea is present, characteristic crystals of nitrate of ammonia will be formed.

Epilepsy.—Dr. E. Watson having studied Dr. Marshall Hall's theory of the relation of laryngismus to epileptic convulsions, adopted the following treatment. The patient was a young lady, who for several years had been afflicted with epilepsy. Dr. Watson applied a solution of nitrate of silver (℥j. to ℥j. to the glottis, daily for a fortnight, and afterward for some weeks with longer intervals between the applications. There can be no doubt but that the treatment gave marked relief, both in the frequency and intensity of the paroxysms. *Part xxvi., p. 42.*

Epileptic Convulsions.—In the case of a child one year and seven months old, after all means of relief had been tried without effect, and the patient seemed sinking fast, it was determined to try chloroform interally. Five-minim doses were given after every fit. After the first dose, the child slept almost continuously. The remedy was ordered to be given three times a day, the dose being afterward increased to seven minims, but the convulsions were never again repeated, and after the first dose of chloroform, the child rapidly improved. *Part xxviii., p. 61.*

Tracheotomy for the Relief of Epilepsy.—In two cases of this disease, the operation of tracheotomy was performed with the best results. It was found that the operation was best performed thus: The incisions were made in a transverse direction above the thyroid body, the muscular fibres being divided freely, and the trachea laid bare just below the cricoid cartilage. The main incision into the trachea was also made transversely, but from the middle of the lower edge a short downward incision was added. *Part xxviii., p. 62.*

Epilepsy.—Let the patient live by rule, and take a proper degree of exercise. Act daily on the bowels twice by the following pills: mercurial pil., one scruple, compound colocynth pill, two scruples; make into twelve pills, and take one occasionally. Also take of the juice of the cotyledon umbilicus (Davenport's) one teaspoonful daily before breakfast. Avoid stimulants, suppers, balls, theatres, etc. Increase the juice by and by to two teaspoonfuls. *Part xxix., p. 53.*

Epilepsy.—Dr. F. E. Wilkinson corroborates Dr. Marshall Hall's statement of the value of strychnia, dissolved in acetic acid, in the treatment of epilepsy.

Epilepsy—Chloroform.—As long as an animal is fully under the influence of chloroform, no convulsions can be produced. Chloroform controls and modifies the convulsions of epilepsy, and also the delirium of epilepsy, as well as those convulsive jerks of the muscles of both upper and lower extremities which are so distressing. Chloroform also has a marked power over puerperal convulsions; also over the convulsions of infants, and laryngismus stridulus. *Part xxx., p. 37.*

Epilepsy treated by the Bark of Black Elder Tree.—Give an infusion, of the bark of black elder (*sambucus nigra*). It acts as a hydragogue and probably eliminates the poison from the blood which causes the epileptic fit.

In order to prepare it for administration, the branches of the elder, of one or two years, are taken; the grey bark is removed, and the second bark which remains is scraped off. About five ounces of common water, hot or cold, are poured upon two ounces of the bark, and the infusion is

allowed to stand forty-eight hours. The infusion, properly used, should be taken at intervals of a quarter of an hour for a certain number of times when the fit is threatening, the patient fasting. It should be resumed every six or eight days. *Part xiii, p. 2.*

Epilepsy and Convulsive Diseases Generally.—Avoid all the usual excitements; avoid low postures, deep sleep, and tight collars or cravats. Relieve acidity of the stomach with bicarbonate of potash, also remove the colon by enemata. Sometimes a good emetic, as half a drachm of ipecacuanha, will check a convulsion. It is possible that minute doses of strychnia may do good in the undue spinal excitability of epilepsy, the same way as a little alcohol does in the undue cerebral excitement of *clonus tremens*. *Part xiii, p. 2.*

Epilepsy.—Dr. B. Hunt maintains that an abnormal excess of alkali in the blood directly predisposes the nervous system to disease, and not only this, but also that it probably causes various chemical changes in the blood, which result in the generation or retention of noxious matters in the system, which excite a tendency to spasm and convulsions.

Dr. Prout says that alkalis, when assisted by heat, rapidly convert urea into carbonate of ammonia. From this we may infer, that when it exists in excess in the blood, they will also prevent its elements combining so as to form it, and thus noxious matters will be retained which ought to be eliminated, as urea. This, we know, will act on the brain and the system, and probably account for many of the symptoms from which epileptics suffer so much, if not for the epileptic convulsion itself. Such, then, the supposed cause, the greatest benefit has been derived from an acid treatment, externally, by means of the nitro-muriatic acid bath, for twenty minutes every night, and by giving twenty minims of the dilute nitro-muriatic acid twice a day, a compound rhubarb pill every night, and eating subacid fruits, lemon juice, vinegar, etc. This treatment, by which has been tried with wonderful success in many cases which had for years been considered hopeless, and in which almost everything likely to be tried had been tried without success. In the cases where it has been most beneficial there has been a deficiency of urea in the urine and a cloud of phosphates deposited on boiling.

From the uniform deficiency of organic principles, as urea, and the excess of mineral matters, especially chloride of sodium, in the urine, we may infer that they must have some connection with the state of the blood in the disease in question, as cause and effect; this is supported by the success of the acid treatment, which, as it corrects the abnormal state of the urine, cures the disease. *Part xxiiv, p. 31.*

Epilepsy.—The oxide of zinc is very useful as a tonic and antispasmodic in all cases of general nervous debility. It may be given without the slightest fear of danger, in doses gradually increased from fifteen to thirty grains daily.

Oxide of zinc and oxide of silver are now very extensively used in nervous affections. The most agreeable form of the medicine is the syrup of the iodide of zinc. Do not mistake hysteria for epilepsy; in the latter the loss of consciousness is extreme, but not in hysteria.

Part xxxiii, p. 41.

Phosphate of Zinc in Epilepsy.—Dr. Barnes has extensively tested the restorative and curative powers in phosphate of zinc—a new remedy introduced by him in the treatment of epilepsy and other nervous affections resulting from cerebral exhaustion. This physician was led thus to combine phosphorus and zinc by reasoning upon the well known efficacy of zinc in epilepsy, and the fact that in exhausting nervous diseases there appears to be a waste of phosphorus in the brain matter.

In convalescence from fevers, which induce great wasting of tissues, and notably of brain matter, to the extent, not unfrequently, of leading to insanity, Dr. Barnes has exhibited the phosphate of zinc with quinine and other remedies with the most satisfactory results. In combination with conium, it is frequently exhibited with advantage in phthisis in preference to the sulphate of zinc. In the menstrual form of epilepsy, when accompanied by exhaustion and anæmia, the remedy has been of great service. In one case of insanity following on exhaustion produced by lactation for eight months, the phosphate of zinc, judiciously combined with other remedies, completely restored the patient to physical and mental health in three months. Dr. Barnes refers to the readiness with which the phosphate of zinc adapts itself to the peculiarities of different cases by the facility of combination with various other remedies. He prescribes the dilute phosphoric acid as the proper solvent. With this basis he combines tincture of valerian, tincture of cinchona, calumba, quinine, or iron, according to the indication present. It is less liable to cause vomiting than the sulphate. The experience of Dr. Barnes is certainly decisive enough to recommend the phosphate of zinc to the attention of the profession.

Part xxxvii., p. 48.

EPISTAXIS.

Ipecacuanha.—Small doses of ipecacuanha recommended in cases of internal hemorrhage. *Principle:*

More rapid conglutination of the blood, under the influence of nauseating remedies.

Part i., p. 37.

Oil of Ergot.—Mr. Wright, in the course of his observations on the therapeutic action of oil of ergot, says:

In a severe case of epistaxis, I arrested the hemorrhage, by injecting up the nostrils equal parts of very dilute spirit and oil of ergot; and I have little doubt that in the severe cases of flooding which succeed delivery, the injection of this oil, diffused through water, into the uterus, would be productive of the happiest results.

Part ii., p. 42.

General Bleeding.—"In severe cases of epistaxis, it is well known, there is no more judicious means of arresting the bleeding than by taking a quantity of blood from the arm."

Part ii., p. 73.

Simple Means of Arresting Epistaxis.—This consists in nothing more than closing with the opposite hand the nostril from which the blood flows, while the arm of the same side is raised perpendicularly above the head. In every instance in which he has had recourse to this means during the

should be omitted for a few days.

Hemorrhage from the Nose.—Especially in old persons little finger into the nostril, and press upon its floor until it stops; then take a dossil of lint, and roll it upon powdered lint, in this way, until the roof of the nostril supplies the finger.

Epistaxis treated by Insufflations of Alum.—When the nasal cavities assumes a dangerous aspect, recourse is given to plugging, a measure both inconvenient and painful. M. I successfully employed means far more simple, and at the same time to his own account, more certain, namely, the insufflation of a quill, of equal parts of powdered gum arabic and alum. It succeeded after three repetitions; other means, and plugging have entirely failed.

Treatment of Epistaxis.—Mr. Vincent prefers to keep the nose free from all coagulum, by syringing the nose with warm water, until the bleeding ceases. It will not at

Epistaxis.—Oil of turpentine will be found an excellent remedy in doses of from twenty to sixty minims every three or four hours. A tincture of muriate of iron may be given as an adjunct, or in some circumstances.

Plugging the Nostrils.—A tube of caoutchouc with a extremity, or balloon, has been invented by M. Garriel, which is introduced into the nostril and expanded by insufflation of air, the pressure as to arrest the hemorrhage in cases of epistaxis. If carried into the back part of the mouth along the floor of the mouth, then expanded, the posterior nares may also be plugged.

127 r drossils rolled in this mixture may be applied, taking care to moisten them with warm water, before removing them. 3. Perhaps the best plan is previously to dry the nostrils and then pass into them drossils of pure clean cotton wool, until they are filled, not pressing it too tightly, or allowing it to be too loose.

Part xxvi., p. 160.

Tincture of Benzoin as a Remedy for Epistaxis.—[The case was that of a delicate child with disease of the heart following rheumatism. She had had several severe attacks of epistaxis before the one on account of which the author—Prof. Barker, of New York—was called.

The posterior nares had been twice plugged, each time by a distinguished surgeon who had been called in consultation. He represented the present attack as more severe than any she had had before.

"For some time past I have been accustomed to arrest the severe hemorrhage resulting from malignant ulceration of the cervix uteri, by painting over the diseased surface the tinct. benzoin co. It now occurred to me that this article might possibly prove equally serviceable in the present case. I injected about a drachm, by means of a small syringe, up the left nostril, the passage from which all the hemorrhage came. For a moment or two she complained bitterly of a severe burning pain in the nose, extending back to the ear, but it very soon subsided, and the hemorrhage entirely ceased within five minutes after the injection was used. I remained with my patient about a half hour, and then directed a teaspoonful of elix. pargoric to be taken, and this to be repeated in an hour if she did not fall asleep. She has had no hemorrhage since, and her general health has improved in the most remarkable manner, under the steady use of the syrup of the phosphate of iron."

Part xxxvii., p. 58.

Turpentine as a Styptic.—To arrest hemorrhage in epistaxis, and after venesection. *Vide* Art. "Turpentine."

ERGOT.

Preservation of the Ergot of Rye.—1st, Reduce the recent ergot well dried into powder. 2dly, Expose the powder to a temperature of 45 or 50 degrees (centigrade), in order to dry it thoroughly and quickly. 3dly, Put it into glass bottles not exceeding a hectogramme in size, and seal hermetically. 4thly, Withdraw it from the action of light, by shutting it up either in a dark place, or by covering the bottles with black paper. If the results obtained by this process be really as advantageous as the author announces, we cannot too soon direct the attention of pharmacutists to it; for it too frequently happens, especially at the latter part of the season, that the officinal preparations of the ergot are so deteriorated, that it is impossible to calculate with certainty upon their effects.

Part xi., p. 230.

Ergot, Substitute for.—Dr. Washington, of America, has discovered that dry cupping on the lowest part of the sacrum produces dilatation of the os uteri, and higher up contraction of the uterus. We may use one or other of these, according to the nature of the case. But the lower

one should always be on when the upper one is applied, so as to insure relaxation of the os when the pains come on. *Part xviii., p. 273.*

Ergot of Wheat.—The medical and obstetrical property of this ergot is as incontestable as that of ergot of rye; its effects are as prompt, as direct, and as great. Its hemostatic action appears equally certain.

Part xxiv., p. 234.

ERYSIPELAS.

Bark of the Ulmus Campestris (Elm).—Recommended internally and externally in mild cases of erysipelas. Four ounces of the fresh elm bark bruised, boiled in four pints of water, form a thick decoction.

Part i., p. 61.

Ambulatory or Erratic Erysipelas usually terminates in the formation of abscesses. These abscesses generally form without pain, and often without the patient being at all aware of their development. Such an occurrence is frequently the counterpart of what is going on in some internal part; a slow inflammatory action is set up, and terminates in suppuration, without either pain, fever, or any outward symptom being manifested.

Part iii., p. 116.

Treatment of Erysipelas.—M. Velpeau declares, that having frequently failed with the usual remedies employed against this malady, such as compression, the flying blister, nitrate of silver drawn across, or around the inflamed surface, white precipitate ointment, the various acids, etc., an idea suggested itself to him, from a consideration of the modifications induced in the blood by the preparations of iron. He was thence led to employ as a local application a solution of the sulphate of iron, in the proportion of one ounce to a pint of water, or an ointment containing two drachms to an ounce of lard. The ointment he considers a more convenient application for the head, neck, and trunk. Great care is, however, requisite in thoroughly powdering the salt before mixing it with the lard. It should then be rubbed freely over the whole inflamed surface, and over a little beyond. The solution is employed by means of compresses, renewed every six hours, and maintained on the part by means of a bandage. The skin must be kept constantly moist. One of the inconveniences of the sulphate of iron, is that of reddening the linen with which it comes in contact. No means of neutralizing this effect has been as yet discovered. M. Velpeau states that in twenty-four cases in which he employed this application, the most marked and rapid influence was exerted over the progress of the eruption. It is suggested also to administer the sulphate of iron internally.

Part vi., p. 20.

Edematous Erysipelas.—Case cited recurring in an old cachectic subject, benefited by tincture of iodine locally, together with bandaging and constitutional treatment.

Part vi., p. 119.

Musk—Is considered very useful in the delirium which sometimes attends erysipelas and other exanthemata.

Part ix., p. 77.

Treatment of Erysipelas.—Numerous clinical facts prove, that the sulphate of iron is one of the most efficacious topical remedies in erysipelas. This substance may be employed in solution, or as an ointment; Professor Velpeau prefers the former, and has recourse to the latter only when it is impossible to apply compresses soaked in the liquid on the seat of the disease. When these topical remedies are had recourse to, the erysipelas generally yields in the space of twenty-four hours; the skin becomes less tense, and loses its shining aspect; the epidermis is drawn into small folds, and cracks; the tumefaction decreases; the pain and the heat disappear. Professor V. insists particularly upon not confounding this disease with angioleucitis, diffused phlegmon, cellular phlebitis, and erythema, as it is doubtful whether the ferruginous application is useful in these disorders. Erysipelas is characterized by a diffused inflammation, without any notable swelling of the sub-cutaneous tissues, extending gradually from one part to another, the edges of the inflamed spot being as red as its centre, and slightly elevated and festooned; the skin a line beyond this edge appears to be normal—whereas, a line within, it is as inflamed as in the centre of the affected part. According to Professor V., this *festooned edge* is the pathognomonic sign of erysipelas. Finally, should the disorder appear to be produced by some internal cause, we must first direct our remedies against this, the sulphate of iron being only really efficacious when the inflammation is purely local.

Part xi., p. 189.

Treatment of Erysipelas.—[As to the local treatment, hot fomentations, says Dr. Basham, are very useful, and are generally (not always though) preferred by the patient to cold applications. He continues:

The nitrate of silver has been used freely to the erysipelatous surface in these cases, and with the effect of cutting short the inflammation, by setting up an action different from, and incompatible with, the specific action of erysipelas. That it does cut short the inflammatory condition of the skin is proved by the absence of vesication when it is applied in time, the cuticle subsequently merely desquamating. That the action of the nitrate of silver on the skin is incompatible with erysipelatous inflammation is also testified by the fact, that the disease will not extend itself beyond a line marked out by the lunar caustic. Advantage is taken of this fact to prevent the erysipelas extending, by surrounding the inflamed parts with a cauterized line of demarcation.

There are some cases, however, in which it is less advisable to use the nitrate, than to depend upon free incisions made with a lancet, scoring the skin in parallel lines, and sufficiently to extract blood freely for the relief of the fullness and distention. This course is especially necessary when the appearance of the skin indicates a more intense degree of inflammation, of a more palpable phlegmonous character, and certain, if not by this means relieved, to terminate in suppuration and purulent infiltration in the subjacent cellular tissue. This practice may appear severe, but it is not so; it quickly affords relief, and saves much subsequent pain and trouble.

[Any little abscesses that form on the face, for instance in idiopathic erysipelas, where general purulent infiltration is rare, should be opened by a free incision, and the contents being evacuated, pressure should be made upon the sides, or the sac will refill. With regard to constitutional treatment, brisk purgatives—at the beginning of the affection, mercurial alter-

ratives, and toward the end, wine or ammonia, if required, are the remedies to be relied upon; for, as Dr. Basham observes, general blood-letting, and depleting treatment, are not admissible in those cases met with in the metropolis. He says:]

The chylipoietic viscera are always irregular in function and secretion, and require the agency of mercurial purgatives; these unload the bowels, relieve the biliary congestion, and improve the aspect of the dejections. Brisk saline purgatives, coöperating with the mercurials, so that they be not pushed too far, are of great utility. Colchicum, in combination with a neutral salt and magnesia, is in my experience the best form of cathartic. The action of the colchicum is developed principally on the duodenum; it stimulates the hepatic ducts, cleanses this portion of the intestines of mucoid accumulations, modifies the accompanying fever, diminishes the heat of the skin, relieves the local turgescence, and furnishes other indications of amelioration. Two or three good purgative actions are generally sufficient, for hypercatharsis must be carefully avoided. The form in which I usually prescribe colchicum, is the *haustus colchici* composed of our Hospital Pharmacopœia. *Vin. colchici*, dr. ss.; *solut. magn. sulph.* dr. iij.; *magnesie carb.*, gr. xx.; *aquæ menthæ pip.* oz. j. m. fiat haustus.

The type of the fever in the majority of metropolitan cases is unquestionably of an asthenic order, ammonia and other stimuli becoming necessary oftentimes in the early stages of the disease.

Opium exercises a most beneficial influence wherever irritability, restlessness, and delirium, are the concomitants of fever. The *puru ipecacuanhæ comp.* is, in most cases, the best form in which opium can be given, from its developing a secondary influence over the skin.

It has been already observed, that diffusible and vinous stimuli are important and essential remedies, so soon as the pulse and tongue indicate the approach of a typhoid condition. Ammonia is best given, as the sesquicarbonate in the *mistura ammoniæ acetatis*, or effervescing draught, formed by twenty grains of the sesquicarbonate with two teaspoonfuls of lemon-juice. The tongue becoming moist, the skin cool, and the pulse lowering in frequency, express a remission of the adynamic state. Of vinous stimuli, it is hardly necessary to specify any particular kind; port wine or brandy is most usually employed.

The convalescent stage of this affection differs in but little from similar periods of other fevers. Cinchona-bark tea, with a mineral acid, forms the cheapest and most effective tonic, prepared by pouring a pint of boiling water on an ounce of the bruised lance-leaved bark, the water being first acidulated with three drachms of the dilute sulphuric acid. It differs from the *infusum cinchonæ* of the pharmacopœia only in the maceration with acidulated water, the object of which is to render the *kinate of cinchonia* more readily soluble. You will find this tonic economical, and quite as efficacious in the convalescent periods of most acute diseases as the more expensive preparation of quinine.

Part xv., p. 257.

Treatment of Erysipelas by Nitrate of Silver.—[If nitrate of silver be applied early it will certainly subdue the local inflammation; but still we must use constitutional remedies, especially for the regulation of the digestive functions. Of the mode of using the nitrate, Mr. Higginbottom thus speaks:]

Even in idiopathic erysipelas, there is no period of the disease when I

would not apply the nitrate of silver. I have never in any case seen metastasis, or any other bad effect, from the use of this important remedy.

When it is necessary to apply the nitrate of silver over an extensive surface, as in erysipelas, I have for some years used the concentrated solution, to the inflamed skin, and for two or three inches beyond its margin. *R Argenti nitratis, ℥iv. ; acidi nitrici, gtt. vj. ; aquæ destillatæ, ℥iv.* Before the application, the part should be washed with soap and water, and then pure water; and the solution must be again applied in twelve hours if the first application is found not to have been uniform.

In severe cases of inflammation, in which there may be a suspicion of deep-seated suppuration, a poultice of bread and water, or a plaster of neutral ointment, may be applied after the nitrate of silver, to keep the surface soft for a future examination.

Sometimes, even after the most decided application of the nitrate of silver, the inflammation may spread, but it is then generally much less severe, and it is eventually checked by the repeated application of this remedy.

The nitrate of silver is not a caustic, in any sense of the word. It subdues inflammation, and induces resolution and the healing process. It preserves and does not destroy, the part to which it is applied. If we compare a caustic, as the hydrate of potassa, with the nitrate of silver, we find that the hydrate of potassa destroys, and induces a slough and the ulcerative process; but if we touch a part with the nitrate of silver, the eschar remains for a time, and then falls off, leaving the subsequent parts healed.

If an ulcerated surface secreting pus be touched by the nitrate of silver, the succeeding discharge is immediately converted into lymph; it is the property of the hydrate of potassa, on the contrary, to induce not only ulceration, but suppuration. The nitrate of silver and the hydrate of potassa (as indeed all caustics) are as the poles to each other; the first preserves, the second destroys; the first induces cicatrization, the second ulceration.

Part xvi., p. 225.

Treatment of Erysipelas by Linear Blisters.—Erysipelas is not a severe disease when it is confined to a limited part of the body; it is generally its extension, either superficially or in depth, that produces the danger. M. Pierry affirms that he has discovered a means of effecting the desired limitation of inflammatory action with great certainty, by applying at the commencement of the disease, narrow blisters around the circumference of the inflamed skin, at a distance of an inch or two from its border. He states that the erysipelatous blush soon reaches the inflammation arising from the blister, but in more than twenty cases has not gone beyond it.

Part xvi., p. 225.

Traumatic Erysipelas.—Traumatic erysipelas will not show itself without constitutional predisposition, arising from epidemic or endemic causes; but when this predisposition exists, the slightest injury to the tissues may give rise to the disease; hence arises the propriety of postponing operations on hospital patients, when erysipelas is present in the ward. This is especially applicable to operations on the head and face, regions in which erysipelas is very liable to occur; a liability depending, Mr. Cooper thinks, on the fact that in the head and face most of the muscles are inserted into the skin.

Blood-letting can very rarely be borne; leeches are inadmissible from the irritation which their bites sometimes produce; and cold must never be applied in erysipelas of the head or face, for fear of producing fatal metastasis. The only remaining antiphlogistic plan is to act upon the secretions. For this purpose give the following medicines: *R Hydr. chlorid. gr. iss.; pulv. Jacobi ver. gr. iij. M. ft. pil.; and R Magnesia, carb. gr. x.; sodæ sesquicarb. ℥j., vin. ipecac. 3ss.; mist. camphoræ 5j. M. to be taken twice or thrice a day with a spoonful of lemon juice.* If the symptoms are typhoid, substitute ammonia for the soda. Porter and generous suppers must be allowed; and, if there is much debility, wine or brandy. If there is much tension of the skin, puncture it, but do not make long incisions, unless there is extensive cellular sloughing. If the inflammation has great tendency to spread, apply lunar caustic or mercurial ointment round the borders.

Part xvii., p. 198.

Use of Creasote in Erysipelas.—Dr. Fahnestock, of Pittsburg, uses creasote in the treatment of erysipelas, with the best results.

In every case of local erysipelas he immediately applies the purest creasote, with a camel's-hair brush, over the whole of the affected surface, extending it some distance beyond the inflamed part, and at the same time administering a dose of calomel followed by a sufficient portion of jalap to insure free catharsis. This, in the majority of cases, is all that he finds necessary. But when the mucous membrane of the mouth and the fauces is also affected, he pencils those parts with a solution of the nitrate of silver, say from half a drachm to a drachm in an ounce of distilled water.

In the phlegmonous form, it will be found necessary to repeat the application more frequently than in the simple, with the addition of a bread and water poultice, applied nearly cold, and well sprinkled with water strongly impregnated with the creasote, or a cloth, kept constantly wet with the solution, especially for the face.

The creasote when applied, should cause the parts to become white immediately; if this does not occur it is not pure.

The skin does not become in the least marked by the application, no matter how often it is applied.

Part xviii., p. 211.

Severe Cold, or Congelation.—Employ cold so as to produce congelation of the parts for a few seconds, by applying a piece of ice, made of a suitable form by a hot iron, and dipped into a mixture of salt and nitrate of ammonia.

Part xviii., p. 211.

Treatment of Erysipelas by Congelation.—Dr. James Arnott recommends the application of a freezing mixture of pounded ice and salt, on a flat sponge or in a bag of silk gauze, to a part of the inflamed surface, and keep it applied for about a minute, or until the skin becomes white and hard. Then apply it to another part of the surface, and so on until large patches of the skin have become frozen.

Part xix., p. 192.

Use of Nit. Silver.—If the inflammation spreads, repeat the application. If there are vesicles, break them and apply the solution over the denuded part; but do not disturb the vesications caused by the nitrate of silver itself. When erysipelas is spreading to the scalp, shave the head as early as possible, and apply the solution freely all over the scalp. Nitrate

of silver may be applied in any period of the disease; and it never causes metastasia.

* * * * *

Phlegmonous.—Apply a number of leeches to the inflamed part, or make small incisions with a lancet; put on a bread and water poultice until the bleeding has ceased, and then apply the solution of nitrate of silver (℞j. to ℞j.) freely upon and beyond the inflamed parts. If suppuration is expected, cover it with a plaster of neutral ointment (a modification of ung. plumbi co.), but if not, expose the parts to the air to form an eschar. The constitutional treatment will be ipecacuanha emetics, saline purgatives, and repeated doses of calomel with James' powder.

Part xxi., p. 250.

Treatment of Erysipelas by Collodion.—Apply collodion all over the inflamed surface daily. It may be safely applied to the head and face.

Part xxi., p. 257.

Treatment of Erysipelas.—Mr. Lawrence recommends the antiphlogistic treatment; Dr. Fordyce the stimulating plan; Desault gives a grain of tartar emetic in a considerable quantity of fluid in the bilious erysipelas. According to Dr. Walsh, there is no form of the disease which should not be attacked from the first with tartar emetic, and under all and every circumstance we shall find that the disease yields to this remedy. It should be administered in small doses (one grain dissolved in any bland fluid being taken in the twenty-four hours), which may be repeated three or four times, so as to keep up its effect on the disease, on which it appears to act as a specific. As a general rule, when the erysipelatous surface is getting a yellow tinge, the skin shrivelling a little, and the pulse becoming less frequent (as it generally falls under the use of the tartar emetic), the proper time has arrived to commence with tonics and omit the tartar emetic. Of these, the sulphate of quina has been found the most successful. In some cases, where there are low typhoid symptoms, with prostration of strength, tonics and stimulants may have to be given with the tartar emetic, even from the commencement. Pil. rhei co., gr. vj. with pil. hydrarg., gr. ij. may be given as an aperient, to be repeated in six or eight hours if necessary. All local applications are unnecessary except in idiopathic erysipelas, in which flour or powdered starch may be used, and in the traumatic form, a large linseed-meal cataplasm. There is rarely any occasion for leeching, or the making of incisions, if the antimonial treatment be early adopted. Erysipelas being a constitutional disease, local treatment is of little use; "inflammation being the method taken to throw off the morbid state of the blood, anything that tends to check that eruption will be the means of preventing the efforts of nature, and probably cause a metastasis to some other part of the body."

Part xxii., p. 34.

Muriated Tincture of Iron.—In the common form of erysipelas, give fifteen drops of the muriated tincture of iron, every three hours. It may be especially given in cases of infantile erysipelas, in doses of two drops, as well as in that form of erysipelas dependent upon internal injury. From the analogous nature of puerperal fever to erysipelas, many valuable lives might be preserved, in the opinion of the author, by its bold and persevering use.

Part xxiv., p. 252.

Erysipelas Phlegmonodes.—Mr. Guthrie remarks that until the battle

of Salamanca, in 1812, it was the custom of surgeons to stand quietly by and watch the progress of this peculiar form of inflammation, until life was either destroyed by the extensive mortification which ensued, or by the indomitable fever and affection of the brain which accompanied it.

Accident (Mr. Guthrie observes) led me, after that battle, to perceive that the only effective means of relief in severe cases, lay in free incision made into the part at an early period, according to the extent of mischief which had supervened; which mode of practice has been invariably advocated in my lectures, from the year 1817.

Part xiv., p. 203.

Erysipelas.—Prof. Bennett says:

Erysipelas is opposed to scarlatina, in being the least infectious of the eruptive fevers, in being the least fatal, and in running a much lower course. In many other respects there is a close analogy between them observable in the kind of fever, the sequelæ, and critical discharge of coagulable urine, as lately pointed out by Dr. Alexander Wood and Dr. James W. Begbie. The general indications for treatment are the same. The special treatment is directed by means of topical applications to diminish the local inflammation. For this purpose numerous remedies have been tried—such as dusting the part with flour, lotion of acetate of lead and opium, cerates, oil, etc.—any of which serve the purpose of cooling the surface, rendering it more soft, and diminishing irritation.

There can be no doubt that erysipelas is occasionally a fatal disease, from the intensity of the fever, and amount of integument involved. It is generally supposed that when it attacks the face and scalp, it is more dangerous than when a similar amount of surface in any other part is affected. This opinion does not appear to be founded on very exact observation. Even when the scalp is extensively invaded, death from erysipelas is a rare occurrence. On going round the wards of the Hôtel Dieu, in May, 1834, with M. Louis, I saw several severe cases of erysipelas of the scalp, which, I was told, were under no treatment whatever, because, as M. Louis informed me, according to his experience, erysipelas of the scalp was never fatal, unless it occurred in individuals of bad constitutions, or was associated with some complication. I need not say that, without forming any such exclusive opinion as this, it must be very difficult, in a disease that so generally tends to recovery, to judge how far this or that remedy is beneficial. Mr. Hamilton Bell has lately recommended fifteen to twenty drops of *tr. ferri muriatis* every second hour, as a most beneficial remedy in erysipelas.

Part xxvi., p. 12.

Collodion and Castor Oil in Erysipelas.—Apply the following to the skin; Collodion 30 parts, castor oil 2 parts; mix. Apply it once a day for three successive days to the parts attacked. A cessation of the burning pain and the disappearance of the redness take place.

Part xxvii., p. 156.

Tinct. Iodine Externally.—In the treatment of this disease by the employment locally of the tincture of iodine, Mr. Norris arrives at the following results: That its application over the whole of the affected part appears to exert a specific control over the disease; that the earlier it is applied the more manifest is the result; and that as often as the skin becomes pale from the vaporization of the iodine it should be repeated, not

withstanding the somewhat severe smarting which oftentimes immediately ensues. *Part xxvii., p. 157.*

Ferruginous Collodion.—Having observed the utility of the salts of iron in erysipelas, M. Aran, to facilitate their application, combined them with collodion, forming a preparation which united the compressive and astringent effects. It consists of equal parts of collodion and Bestuchef's tincture (ethereal tincture of perchloride of iron). Spread on the skin, it forms a somewhat thinner pellicle than ordinary collodion, but it is much more supple and resisting, so that the limb can be moved in any direction without the cracking which takes place when collodion alone is used. Its adhesion is also more prolonged. *Part xxviii., p. 321.*

Erysipelas.—Early in the case, when the pulse is hard and full, and when there is no intestinal irritation, give an emetic of tartarized antimony and ipecacuanha, followed by minute doses of the antimony, till the pulse softens. Then give wine and good nutriment, especially if the tongue be brown; give from four to six ounces of wine daily with sago, beef-tea, etc., but avoid giving the wine or brandy so long as the fever is high. The above quantity ought sometimes to be doubled. As a topical remedy, mercurial ointment is as good as any, and perhaps better, but use it cautiously, or the patient will be suddenly salivated. *Part xxx., p. 174.*

Treatment of.—M. Velpeau seems to place the greatest faith in iron.

Apply the protosulphate of iron 3viiss. to 3xxxv. of water, or 8 parts to 30 of lard. Apply either of these three times a day to the part, and to a little distance beyond the disease.

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M. Debout recommends the following formulæ: *Ointment:* Sulphate of iron 5 to 10 parts, water 12½ to 25 parts, oil 12½ to 25 parts, lard 70 to 40 parts. *Solution:* Sulphate of iron 10 to 20 or 40 parts, water 120 to 110 or 90 parts, glycerine 70 parts. *Part xxxi., p. 195.*

Treatment of Erysipelas.—According to Dr. R. B. Todd, if you uphold the powers of the system from the commencement of the attack, it rarely happens that secondary phenomena manifest themselves; if you do not, the cellular tissue becomes involved, extensive abscesses form, which reduce the patient exceedingly, or perhaps wear out his life. If the glottis becomes affected and oedematous, you must perform tracheotomy, give food and stimulants perseveringly at stated intervals, strong beef-tea, and half an ounce of brandy every half hour, also ammonia and chloric ether. If the force of the poison falls principally on the mucous membrane of the pharynx, so that the patient cannot swallow, the only resource left is to throw strong beef-tea injections, containing large doses of quinine, into the rectum; you may also touch the back of the fauces with the solid nitrate silver, or a strong solution of it, and as soon as the patient can swallow a little, give large and frequent doses of brandy, ammonia, chloric ether and beef-tea. If the plan of feeding by the rectum fails, you must have recourse to the stomach tube, though only when all other means of introducing food are found unsuccessful. If it attacks the peritoneum, producing puerperal fever, or puerperal peritonitis, it must be treated in the same way, or the patient will sink. The stimulating and supporting plan is the best adapted to save life and prevent the secondary effects of this malady.

The treatment consists in giving food and stimulants early, freely and steadily, such as two or three ounces of beef-ten at stated times, and from two drachms to half an ounce or an ounce of brandy slightly diluted with water; and if drugs are needed, ammonia, chloric ether and bark. Do not give two different forms of alcoholic fluid at the same time, as wine and brandy, gin and brandy, etc., and for other nourishment it is desirable to observe the same rule. If you begin this treatment early, from the very commencement of the attack, you will prevent both delirium and coma, but if, notwithstanding the treatment, coma does set in, you may with certainty conclude that the blood is poisoned by pus, and death will occur from pyæmia. Of all stimulants, the alcoholic are the best, and if you have your choice choose brandy; it acts as an antidote to the erysipelatous poison. The tincture of sesquichloride of iron is very commonly given in this disease, it mainly acts by excluding depressing treatment, and perhaps partly as a tonic, but if you do no more than this you do very little; you must not only prevent depletion and depression, *but you must nourish and support.*

Part xxii., p. 39.

Traumatic Erysipelas, and other Forms of the Disease, in Military Life—Treatment.—Such modified differences of innervation and vascular action accompany the varied forms of this disease, that no uniform plan of treatment can be applicable to all, and the attendant circumstances of each particular case must be fully considered, before an exclusive antiphlogistic or tonic mode of treatment be resorted to. In most cases a union of both will be found the most judicious system to be pursued, and must consist of both constitutional and local means. In regard to the former, all morbid secretions connected with gastric and biliary irritation must be evacuated by means of small doses of calomel, James's powder, and acetous extract of colchicum, combined with half a grain of opium, followed next morning by castor oil or any other eligible purgative. The impaired functions of the kidneys and skin are to be at the same time restored by means of either the acetate or nitrate of potass, given with the bicarbonate and nitrous ether, converted into draughts of effervescing citrate, by means of lemon-juice. If there be much red sediment in the urine, an ample allowance of beef-ten, to which a few drops of the liquor potassæ have been added, must be freely administered, with solution of quinine, as soon as the febrile symptoms have lessened, and the urinary secretion has been partially restored. The patient, unless plethoric in habit, must at the same time have plenty of nourishing but anti-bilious diet; and when vascular action is of the asthenic type, an allowance of wine may be necessary. The age, strength and habits of the patient must also be taken into account. Occasionally both local and general depletion may be necessary. The first can be best effected by means of cupping-glasses, or the scarifications may be effected with the point of a lancet, as practised by Sir R. Dobson. If the disease be of the phlegmonoid kind, and the extent of sero-fibrinous exudation threaten suppuration or the vitality of the part, incisions of from two to three inches in length must be practised, to relieve the strangulation. Various local applications are made use of by various practitioners, such as fomentations of poppy-heads, collodion, solution of sulphate of iron, etc. As a local application, there is nothing better than camphor mixture, with a proportion of vinegar, and tincture of opium, applied warm by means of lint, and then covered with oiled silk. *Part xxxii., p. 188.*

Erysipelas.—Apply a solution of gutta percha in naphtha, and over this place thin gutta percha tissue; it acts by exclusion of air. This holds firmly for from three to five days, and may then be readily taken off, if wished, as a simple plaster. You may keep it in a small tin pot, having a lid which screws on to prevent evaporation; and when wished to be used, it may be warmed and applied with the finger. *Part xxxiii., p. 326.*

Tincture of Lobelia—Use of.—Dr. Livezey wishes to recommend to notice a strong, saturated tinct. lobeliae, applied frequently by saturating muslin, or fine linen cloths, and which he believes will prove more satisfactory than any other application. *Part xxxv., p. 169.*

Creasote in Erysipelas.—Dr. Delarue strongly recommends the following application in erysipelas, which he believes exerts even a specific effect upon the disease: creasote, eight parts; lard, thirty parts; to be applied to the parts every two hours. *Part xxxv., p. 169.*

Idiopathic Erysipelas.—Erysipelas, at the present day, requires a tonic and stimulating treatment; but, at the same time, the antiphlogistic treatment formerly employed was then justified. The present type of the disease depends on a deteriorated condition of the constitutional powers of the inhabitants of populous parts. The cause of this deterioration is capable of very important amelioration. *Part xxxvii., p. 165.*

Treatment of Erysipelas.—The following plan of treatment is recommended by Dr. P. H. Bird, author of the Jacksonian Prize Essay on Erysipelas:

Erysipelas must be treated by stimulants, and by the free and steady administration of nourishment: frequent and large doses of brandy, beef tea, quinine, ammonia, chloric ether, etc., should be given, and attention paid more to the state of the pulse than to that of the secretions. In rural districts, among a hardy and robust population, a more marked inflammatory form will be benefited by purgatives, and slight but not too lowering antiphlogistics; each case presenting its own peculiarities and indications, on which the necessity and the proper time for the administration of stimulants must depend.

Opiates must be given with great caution—they are contra-indicated in cerebral congestion and coma; in these cases the milder preparation of hyoscyamus is to be preferred; but to lessen pain and irritation, tranquilize the system, and procure sleep, they are of much service in the latter stages and more severe forms of the disease. For this, they should be given in sufficiently large doses to produce the desired effect, small doses only adding to the febrile excitement, and rendering the head more liable to become affected. In cases attended with violent delirium, I have seen the hydrochlorate and acetate of morphia, in grain doses, produce a most beneficial effect.

In desperate cases, with intense coma and typhoid symptoms, turpentine has produced good results; its purgative action should be decided, otherwise it is apt to cause unpleasant head symptoms; it should be given in doses of ʒij. to ʒiv., with one-half or two-thirds the quantity of castor-oil.

When diffuse inflammation is spreading down the larynx and trachea, tracheotomy is imperatively called for, combined with the free administration of stimulants.

The tincture of the sesquichloride of iron is especially indicated in albu-

minuria, coincident with, or consequent on, general erysipelas, of which I have met with three cases.

In cases of chronic erysipelas, the functions of the stomach and liver are often disordered, and the secretions consequently vitiated; these conditions must be rectified by a course of alteratives, aperients and tonics—such as iodide of potassium, alkalies and sarsaparilla, preparations of zinc and iron.

With regard to local treatment, I am not aware of any that will shorten the disease; in the uncomplicated variety, collodion, or gutta serena dissolved in benzole, forms an elegant remedy; and in uncomplicated erysipelas of the face, punctures relieve the distention; but the most agreeable application will be found to be that of lard and cotton wool, after raising the skin by warm fomentations. In uncomplicated erysipelas of the extremities, a perfect line of nitrate of silver, at least three inches above the line of disease, in nine cases out of eleven proved a sure barrier. Where an interstice has been left, I have seen it creep through and spread.

In the variety complicated with diffuse inflammation of the cellular tissue, the early use of small incisions when the skin is hard, tense and resisting, and the pain severe and throbbing, is much to be recommended.

In chronic erysipelas, a solution of the nitrate of silver should be frequently applied, or small blisters at short intervals at a little distance from the affected part; occasionally, when these fail, an issue in the arms effects a cure.

To conclude, then, erysipelas is merely an example on the skin of that diffuse inflammation which in other tissues constitutes diffuse inflammation of the mucous membrane, diffuse phlebitis, puerperal fever—all of which have a common origin, a poison in the blood, are infectious and contagious, and may mutually produce each other.

The term erysipelas should be confined to diffuse inflammation of the skin and subcutaneous cellular tissue.

Part xxxvii., p. 171.

Erysipelas.—When in the legs or arms, elevate the parts as much as you can conveniently; it facilitates the cure considerably.

Part xxxix., p. 231.

Erysipelas—Pigmentum Album.—Paint the part over pretty thickly with common white paint, going a little beyond the edge of the inflammation. “I have never yet met with a case of this nature where it has not done immense good. The light, shining skin soon becomes wrinkled and shrunken, and after repeating the application once or twice, the inflammation very rarely extends. This same application may be used with advantage in other forms of cutaneous affection.

Part xl., p. 139.

ETHER.

Ether in Midwifery.—Dr. Protheroe Smith has more particularly than almost any other writer called our attention to the influence of this agent in relaxing the os uteri.

Dr. Smith's opinions respecting the relaxation of the os uteri are re-

markably confirmed by Professor von Siebold, who here makes one striking remark, "that in both the operations, the parts of generation, the vagina and *os uteri*, were rendered so soft and lax by the narcotism, that the introduction of the blades of the forceps were effected with the greatest ease." Now, we would suggest the application of this remedy in cases where the rigidity of these parts constitutes the greatest possible *bore* to the practitioner, as well as a most painful period to the patient. It is very probable that we shall be able to save many hours of suffering by simply, at an early and convenient period of labor, producing relaxation by ether or chloroform, which we consider to be one of the most useful, convenient, and delightful modes of relieving the suffering patient, and for which the profession is so deeply indebted to Dr. Simpson. *Part xvi., p. 340.*

Effects of Electricity in overcoming the Stupor of Etherization.—M. Ducros states that the phenomena produced by the vapor of ether on chickens and pigeons last from seven to eight minutes; but if these birds, when thus under the influence of ether, are submitted to the action of electricity, by placing them on the isolating stool and allowing a current of positive electricity to pass into them, they recover from their insensibility in about thirty seconds. If they are placed on the electric conductor, they are aroused in ten seconds; and if they are placed at the extremities of the conductors, and thus made to receive electric shocks, their vigor is instantly restored. When submitted to the action of the simple apparatus of Clarke, the electro-magnetic current is equally instantaneous in effecting their restoration. The influence of negative electricity, instead of abridging the insensibility appears to prolong it. *Part xvi., p. 342.*

Administration of Ether in Capsules.—M. Clertan, of Dijon, states that he has for some time been accustomed to give ether in capsules in nervous affections. After several years of observation, by himself and others, he concludes that ether, when introduced in a known dose, pure and without loss, into the stomach, has an effect which was totally unknown until the preparation of the ether pearls (*perles d'éther*). According to the old plan, the ether became partly volatilized before passing halfway down the *œsophagus*; and what arrived in the stomach was dissolved in water, and in a state favorable to rapid and sudden volatilization. M. Clertan has several times seen neuralgia, hemicrania, and gastralgia, arrested instantaneously by from one to three of these capsules—each capsule containing four or five drops.

The ether arrives in the stomach without irritating the membrane of the mouth or pharynx, or producing cough; and it produces its sedative action by its rapid absorption. *Part xxviii., p. 320.*

EYE.

Amaurosis—Ocular Myotomy in certain Cases of.—M. Petrequin has made a communication on this subject to the Académie des Sciences of Paris:

"From what I have observed in those who squint, I have been led to conclude that certain cases of amaurosis have for their primary cause a spasmodic condition of one or more of the muscles surrounding the globe of the eye. It is now a scientific fact, that muscular spasm exists in strabismus; it is not less true that in most cases, there is also considerable weakness of vision in the deviating eye. Myotomy then may become a heroic remedy against amaurosis depending on contraction of the muscles."

The author of the report then gives two cases, one of amaurosis of the left eye, in which the light returned immediately and completely after the operation. In the other the amelioration, though decided, was not so perfect.

Part iv., p. 109.

Incomplete Amaurosis—Electro-Puncture.—This consists in a union of acupuncturation with electricity. The operation consists in employing acupuncturation in the usual way, either with a single needle, or with two or more, and making a communication between them and the prime conductor of an electrical machine; or they may be made to form a part of the circuit in the discharge of a Leyden jar. In this way the electrical influence may be graduated from the simple aura to a full shock.

Magendie affirms, that he has treated many cases of incomplete amaurosis with great success by this agency. He employed it, however, in the form of what has been more properly termed galvano-puncture—by fixing a needle in the frontal nerve, and another in the superior maxillary, and making these communicate respectively with the poles of a galvanic pile of twelve pairs of plates, each six inches square. Whenever the contact was made the patient experienced a painful commotion in the course of the nerves, and at the bottom of the orbit; the light became better appreciated, and the pupil contracted.

Part v., p. 63.

Amaurosis from Pressure on the Retina.—Amongst the various causes of pressure upon the retina, hydrophthalmia is not uncommon; and on this subject Dr. Hocken has written a good paper, which, amongst other things, points out the efficacy of turpentine in its treatment. "General hydrophthalmia is an affection in which the vitreous and aqueous humors are both morbidly increased. The pressure from behind is counterbalanced by the force exerted anteriorly, and hence the iris retains its normal relative situation from the equality of pressure exerted on all sides." In this rare affection there will generally be found great imperfection of vision, a tendency to central thinning and a central protrusion of the cornea, occasioning marked *visus obliquus*. The ordinary remedies so frequently fail in this disease, that we are generally obliged to have recourse to paracentesis oculi, with a repetition of the operation when the fluid accumulates sufficiently. Beer even recommends in some cases, that the cornea be divided and the lens extracted, as well as the chief part of the vitreous humor. Dr. Hocken has seen *turpentine* of excellent use in some of these cases.

The dose should be small, and continued regularly—half a drachm to a

drachm, two or three times a-day, in almond emulsion, containing a small quantity of the sesquicarbonate of soda in solution, and some agreeable sirup to cover its unpleasant taste.

Part v., p. 133.

Treatment of Amaurosis.—Dr. Debreyne relies chiefly on the repeated application of small blisters in the neighborhood of the affected eye, first on the temple and then over the eyebrow. In obstinate cases, the blistered surface should be sprinkled with a powder composed of starch and strychnine—about a fifth of a grain may be used at first, to be gradually increased. When this treatment fails, a seton should be tried. Dr. D. has used with very decided success a collyrium, containing some extract of belladonna, in a good many cases of day blindness or *nyctalopia*.

Part x., p. 26.

Inoculation with Strychnia in Amaurosis.—The subject was a lady, twenty-seven years of age, of nervous temperament, affected with incomplete amaurosis of the left eye, and commencement of the same disease in the right one. The disease was of three months' standing, and of rheumatic origin; after two months' fruitless efforts, Dr. Verlegh tried inoculation with the sulphate of strychnia in the neighborhood of the orbit. A grain of the salt was dissolved in two drops of water; the first day twelve inoculations were performed, six above the eye in the course of the supra-orbital nerve, six under, and on the side of the nose where the ethmoidal filaments and nasal branch terminate, and whence arise the filaments which go to the iris. There was no effect that day; but next day some slight tremors occurred in the neighborhood of the inoculated spots. After two days' rest the inoculations were repeated, and the number of punctures increased to eighteen. The patient now became sensible of a slight haziness. After five successive inoculations carried to the length of thirty punctures, she commenced to distinguish objects; after the eighth, vision was completely restored; the contraction of the pupil gradually increased, and the other symptoms diminished after five grains of the sulphate had been used; during the same time inoculations were had recourse to in the neighborhood of the right eye; after the lapse of two months the patient continued perfectly restored; and this the author conceived sufficiently long to warrant him in considering the cure as permanent.

Part x., p. 169.

Amaurosis.—Employ galvanism, either passed across the orbit (Majendie); or influencing the optic nerve by the irritation of the fifth (Graefen-geisser); introduce into the nose a silver probe, from the silver end of the battery, and touch the region of the frontal nerve, well moistened, with the other pole. In more severe cases apply a blister before employing the galvanism. Take care not to excoriate the skin.

Part xv., p. 79.

Amaurosis.—In a case of this disease succeeding retinitis, the following pills were prescribed: Strychnia, one grain; ext. gentian, six grains; to be divided into twelve; one to be taken every night. In a week the patient was greatly improved, and in two months vision was completely restored.

Part xxviii., p. 248.

CATARACT.

Operation for Secondary Capsular.—Secondary capsular cataract is one of the most frequent consequences of the operation for cataract,

either by extraction or depression. The extraction of secondary capsular cataract, through the cornea, is always a matter of great difficulty, because the surgeon often fails in trying to bring the opaque membrane forward by means of the forceps or hook; it generally escapes backward, and many unsuccessful attempts are made before it can be seized with the instrument. Prolapsus of the iris, followed by staphyloma, irregularity, or even obliteration of the pupil, may result from such attempts. In order to avoid these accidents, M. Siehel proposes to extract the opaque capsule through the sclerotic, in a manner somewhat different from that practised by Bell, Earle and other ophthalmologists, for the removal of lenticular cataract. The usual way of dividing the sclerotic coat has been by a vertical incision; hence, when the external rectus muscle contracts, it constantly separates the edges of the wound, and diminishes the chances of success. M. Siehel, then, applies this method to secondary capsular cataract; but instead of a vertical incision, he makes a small transverse one, parallel to the fibres of the external rectus muscle, as high up as possible, and uses an extremely fine forceps.

Part iii., p. 136.

When a cataract forms in youth, it is almost always in the membrane of the lens; whereas, in old age, it is the substance of the lens itself that becomes opaque.

Part iii., p. 117.

Influence of Artificial Light in causing Impairment of Vision.—The late Dr. James Hunter, of the Edinburgh Eye Dispensary, points out very clearly the perniciousness of artificial light on the retina; common daylight is composed of red, yellow, and blue rays, in the ratio of five, three, and eight; that is, a predominance of blue rays; whereas, artificial light, as that from gas, candles, etc., has this proportion reversed, that is, there is a great excess of the red rays, and the blue rays are most deficient; the consequence is, that the retina becomes exceedingly more excited and heated by the glare of a gaslight than by common daylight, and the way to remedy this is either to cover the gaslight or candle with a blue glass or to wear blue spectacles.

Part iii., p. 136.

Modification in the Operation of Depression for Cataract.—There are cases of disease of the eye where cataract is present, but in which the usual operations for it would be unavailing, such as in those cases where the vitreous humor is so softened and melted down that the lens will not retain its situation when depressed, neither would it be prudent to extract it, as the vitreous humour would follow, neither can the lens be broken up. In these cases, Mr. Morgan recommends tapping the globe through the sclerotic to diminish the vitreous humor so as to allow the lens to fall below the axis of vision. He does this by passing a large sized needle, with cutting sides, through the sclerotic about three lines distant from its juncture with the cornea a little below its transverse diameter; he then draws the cutting edge vertically downward, making an incision parallel with the corneal line of attachment of the sclerotic, and of about a quarter of an inch in length; if the vitreous humor do not escape, gentle pressure may be made on the globe, till sufficient escapes to allow the lens to sink below the axis of vision.

Part iv., p. 87.

Catoptrical Exploration of the Lens.—The catoptrical exploration of the lens unfolds to us a new mode of examining the eye. "If a lighted candle be placed before a sound eye, three reflected images are seen, situ-

ated one behind the other. The anterior and posterior are erect, the middle one is inverted. The anterior is the brightest and most distinct, the posterior the least so. The middle one is the smallest. If the candle be moved the two erect images follow it; but the inverted image moves in the opposite direction. The anterior is produced by the cornea, the posterior by the anterior surface of the lens; and the middle or inverted image is from the posterior surface of the lens." We thus see how valuable this may be made in examining the eye in incipient cataract and other doubtful cases. If the three images can be seen as above described, we may be sure the lens is transparent and the impaired vision must be owing to some other affection than cataract; for cataract obliterates the inverted image and renders the deep erect one very indistinct. "Glaucoma only when very much advanced, obliterates the inverted image, while in all its stages it renders the deep erect one more evident than in the healthy eye. In incipient cataract the inverted image is indistinct, and at last totally vanishes. This examination of the eye will be found of the most essential consequence in many obscure and incipient cases of ophthalmic surgery.

Part iv., p. 94.

Choice of Seasons for Ophthalmic Practice.—Dr. Robert Hamilton, of Edinburgh, directs the attention of ophthalmic surgeons to the care which is manifested by the German ophthalmogists in their treatment of different affections of the eye. This especially refers to the choice of seasonable weather for the different operations for cataract, artificial pupil, and staphyloma.

"Good and steady weather," as Dr. Gulz remarks, "with an agreeable temperature, is what we desiderate, and everything that interferes with this—the cold and snowy weather of winter, the piercing and chilling blasts of spring, or the very hot season, or the very wet one—we try as much as possible to avoid. And hence May and July, September and October are the months we prefer.

Part vii., p. 145.

Black Cataract.—M. Magne relates the following case of this rare and curious disease. A female, above sixty years of age, had labored under some affection of the eye, for which she had consulted a number of oculists. She was quite blind; the eye-balls were prominent; the sclerotics appeared to be thin; the iris well shaped, but perfectly immovable; bottom of the pupil dark, as in the healthy state.

From these and other symptoms, the disease was supposed to be amaurosis; but a second examination of the patient was made in a darkened chamber, and with the aid of a candle, as recommended by M. Sanson. The deep-seated images were absent, and the author accordingly declared the case to be one of black cataract, with adhesion of the iris. This diagnosis having been confirmed by M. Cruveilhier, the lens on the right side was depressed.

The adhesions of the iris were numerous; but as soon as the capsule was lacerated, the dark color of the lens became evident, and on depressing it, several black fragments were detached. On the second day after the operation the pupil appeared to be less contracted, the base being quite dark, but on the following day it was closed with a white substance. M. Cruveilhier regarded this as the lens, which had come forward, after having lost its dark color in the vitreous humor. The operation was unsuccessful, and was, therefore, repeated in a fortnight; but the first touch

of the needle showed that the body supposed to be the lens, was, in reality, the capsule, which was extremely soft and elastic. A few shreds were removed with much difficulty, and the patient recovered but a very imperfect power of vision.

Part viii., p. 160.

Depression of the Lens in Cataract.—The lens should be disengaged from its capsule in depressing it. To accomplish this, introduce the cataract bistoury through the coats of the eye, about a line and a half from the margin of the cornea; it penetrates the vitreous humor, and forms a breach in it, at the proper place for the reception of the lens when depressed; the point of the instrument, directed toward the lens, is to be pushed across the eye to its opposite side, then penetrate the posterior part of the capsule, and, by drawing it outward, incise it across its middle; then push the point of the needle between the lens and the iris, its flat side placed on the lower part of the lens, and press it backward and upward, then shift the point of the needle forward upon the lens, and this presses it backward into the breach of the vitreous humor, from whence it does not rise.

Part xiii., p. 314.

Case of Traumatic Cataract.—[Mr. Close reports a case of traumatic cataract, which was treated at the Manchester Eye Hospital, by Mr. Walker. A piece of iron flew with much force against the patient's right eye while at work as a mechanic. Mr. Close reports:]

On looking at the eye it is evident that the cornea has been cut in a perpendicular direction directly through its central portion, the edges of the wound being slightly uneven and covered with a layer of lymph; the iris appears to have escaped uninjured, the pupil being moderately regular, but rather contracted; the capsule of the lens is opaque, and a portion of opaque lens protrudes through the pupil. The globe is highly vascular.

[He was to have calomel gr. ij., opii gr. ss., at bed-time. Belladonna applied at night, and lead lotion through the day; next day there was no amendment. The intolerance of the light was very severe, and it was decided to puncture the cornea, and give exit to the broken-up lens.]

The grooved-needle knife was accordingly introduced at the outer margin of the cornea, and its point pushed into the pupil. By this operation a small portion only of the dissolved lens passed along the groove of the instrument, the larger part, in consequence of the pressure, being forced through the wound in the centre of the cornea. This was followed by the immediate restoration of sight. He was then directed to be removed to bed and have a belladonna plaster placed over the eye.

An interesting point connected with the case is the rapid recovery after the removal of the foreign body (the broken up lens), notwithstanding the severe penetrating wound of the cornea, effected too by an obtuse body coming forcibly in contact with the eye. The rapidity of recovery is generally in a tolerably exact ratio to the healthy condition of the patient.

Part xiii., p. 315.

Congenital Cataract.—The best time for the operation in these cases is between the second and fourth month; it should not be delayed beyond the fourth or fifth month, as the eyes speedily acquire that restless seeking after light, which is characteristic of such cases, and which greatly interferes with the operation. Sir Charles Bell says that belladonna is of

no use, as it may endanger the falling forward of the lens, which might produce severe irritation by coming in contact with the iris. Mr. White Cooper states, however, that it is of decided use, as it does not endanger the iris from this cause, and that if the needle be properly used, there need be little fear of this accident, but that if from any unforeseen circumstance it should occur, it is far better that the mass should not be bulged against the iris, which is prevented by its dilatation being effected by means of the belladonna.

Part xxvi., p. 295.

Division and Removal of False Membrane or Opaque Capsule from the Axis of Vision.—Instead of using the cataract needle for the purpose of dividing and removing the false membrane, and which commonly stretches and injures the neighboring structures, Mr. Bowman has effected this object by a very simple method. He introduces two needles through different points in the cornea, down to the band of membrane: one acts as a fixed point, while with the other the membrane is torn across, and the fragments carried to opposite sides of the pupil, thereby avoiding the laceration produced by the ordinary operation.

Part xxvi., p. 298.

Cataract—Extraction of.—The short broad knife has the disadvantage of not retaining the aqueous humor so completely and so readily as a long narrow blade, which travels along with great ease without the force and difficulty sometimes experienced in cutting with the short-bladed knife.

Part xxxiii., p. 220.

Cataract—Extraction of.—In performing extraction, in cases of adherent pupil, the adhesions are to the capsule and not to the lens itself; and the former having been well lacerated, the latter is found to be as loose as in the healthy eye. A second needle operation, for getting rid of the capsule after the section has well healed, is of course generally necessary, as indeed is very often the case after ordinary extraction. In rare cases, when the whole margin of the pupil is firmly united and too rigid to allow of the escape of the lens through it, the scissors may be used to liberate and enlarge the pupillary margin.

Part xxxiv., p. 140.

Removal of Cataract by Extraction.—It is of great moment to obtain early union of the wound, and for this end, the upper section ought to be made in the left eye as well as in the right. The even and gentle support of the upper lid insures accurate apposition. The weight of the aqueous humor is principally sustained by the lower and unimpaired half of the anterior chamber; and the aqueous humor, tears and other discharges, are carried away from the wound, which is not therefore disturbed by their confluence between its edges.

Part xxxv., p. 202.

Linear Extraction of Soft Cataract.—Provided that the lens is soft and without a nucleus, it may be removed at once by the method adopted at the Moorfields Hospital in such cases, and there called linear, from the corneal incision being a line more or less in width. With a broad needle, make a puncture on the outer side of the cornea, about a line in width, and with the same needle lacerate the capsule and break up the lens. A channelled curette must now be introduced, through which the fluid part of the lens may escape. By a little manœuvring the capsule itself may be passed.

nerally two or even three may be necessary. But the needle operations are far more favorable than those of ex in hard cataract it is very rare indeed that the lens remains that objections on this ground are of no practical moment

Par

Glaucoma.—It seems probable, from the morbid anatomy that the loss of sight does not depend upon disease of the effects of pressure upon this membrane, at the entrance of the optic nerve. This pressure being relieved the sight is restored. Dr. A. von Graefe recommends the excision of a portion of the sclerotic in its entire breadth from the edge of the pupil to its ciliary margin. The aqueous humor drains away for a day or two after the operation, the hardness of the globe is at once lessened; the pain abates, the haziness of the cornea disappears, and improvement occurs in the deeper parts of the eye. The results are not so striking in chronic glaucoma, as in the former structural changes have taken place in the retina, owing to the long-continued pressure to which it has been subjected.

Par

Relief to the tension of the globe may be obtained by puncturing the sclerotic with a fine grooved needle directed backward about three or four lines behind the margin of the cornea, and repeated if necessary. This plan of procedure is quite as effective and easier to perform than Graefe's plan of iridectomy, and is free from none of the risks of that operation.

Par

Extraction of Cataract—How to fix the Eye.—The following is the most effectual plan of fixing the eye during this operation. Firm pressure, a little beneath the inferior margin of the cornea, is maintained by clasp a somewhat broad portion of the conjunctiva and subconjunctiva by means of a pair of ordinary artery forceps, deliver the eye into the assistant's hand, supported upon the patient's cheek, who holds it as he would a pen. The lower lid requires no fixation.

third image be present, we may decide upon the absence of cataract, as the transparency of the lens and its capsule is essential to its formation.

Part xxxviii., p. 185.

Cataract with Diabetes.—The occurrence of cataract with diabetes has been long known, but very cursorily mentioned or passed over by authors. The fact is certain, however, that cases occur in which, during the continuance of diabetes, cataract appears, generally running a very rapid course, and being in every instance yet seen symmetrically developed on both sides: the lenses increase remarkably in their antero-posterior diameter, so as to encroach upon the anterior chamber, and even to interfere mechanically with the free play of the iris. The color is generally remarkably opalescent. In one case, the very appearance of the cataract led to the discovery of the diabetes. Now, in the treatment of this form of cataract, strenuously avoid any operative interference so long as a useful degree of vision is preserved. But when the period arrives that all useful vision is extinguished, unless the powers of life are rapidly failing, we must attempt to afford relief. From the uniform degree of softness, depression is inapplicable. Extraction cannot be performed because a wound in the cornea will not heal in this state of system. Solution, therefore, only remains, and keratonyxis (the anterior operation, the needle being introduced through the cornea), is the preferable mode, and in performing it the surgeon should be more than usually scrupulous to employ a needle of the greatest delicacy; to make sure that the shaft will completely fill the aperture made by the point; to confine his first manipulations to a narrow area in the centre of the capsule; carefully withdrawing the needle, so as to avoid the crucial wound generally inflicted upon the cornea. *Part xxxix., p. 239.*

Cataract, Reclination of.—When the lens is of mixed consistence (a hard nucleus enveloped in soft lens matter), and in close contact with the ciliary body and iris, thus obliterating the posterior chamber, the lens may be *spitted* by the needle. It is an improvement in the reclination of cataract in these circumstances to use two needles, pressing back "the outer and lower side of the lens from the iris with a fine needle passing through the nasal side of the cornea, thus making a free space for another needle (the sclerotic needle) to pass to the front of the cataract," and thus to recline the lens as desired. *Part xxxix., p. 241.*

Soft Cataract.—It is well known that when soft cataract is treated in the ordinary way, by being broken up with a view to solution, it is often dissolved very slowly, and not without ultimate injury to the visual powers of the eye. But by the operation of linear extraction, or, in other words, extraction through a small section, the pieces may be successfully removed at once. The incision of the cornea is made by means of a triangular-shaped knife, sharp at the point, keen on both edges, and about two and a half or three lines broad at the base. It should enter the cornea near its outer margin, and pass horizontally in front of the iris, until the whole length of the cutting edges has entered the anterior chamber; it is then withdrawn. The capsule must then be broken up, and the fragments brought into the anterior chamber. Most of these will come out with the gush of aqueous humor. Others may, if necessary, be removed by a small silver scoop; but there is no objection to a few small fragments being left; they will rapidly be absorbed on the resecretion of the aqueous humor.

Part xl., p. 168.

CORNEA.

Treatment of Ulcers on the.—Mr. Walker says, speaking of ulcers of the cornea:

Where the ulcer is of some size and penetrating, it will be proper to apply the pencil of nitrate of silver to its edges. But usually, it is much better to apply it to the conjunctival surface of the lower lid, as by so doing you are more likely to destroy the morbid action which gives rise to the ulceration; and at the same time a portion of the dissolved nitrate is carried over and in contact with the ulcer, and produces most of the beneficial effects of its direct application to the abraded surface.

The other local means which I have advised for the treatment of chronic or indolent ophthalmia are also to be used. If the ulcer be situated near the centre of the cornea, and seem likely to penetrate the anterior chamber, it will be proper, in addition, to apply the extract of belladonna to the eyebrows and lids, with a view of keeping the pupil dilated, and the free margin of the iris from falling into the perforation. If, on the contrary, the ulcer be situated at the margin of the cornea, then it will evidently be better to omit the application of the belladonna.

When a portion of the iris has passed through the aperture of the cornea, and forms a prolapsus of some size, it will be proper to touch the protruded part occasionally with the caustic pencil; or if it be very large, it may in some instances be necessary to snip it off with scissors, so as completely to remove what must otherwise be a source of irritation.

For the internal treatment, you will do well to employ tonics, such as the sulphate of quina, and the more so if the patient be of strumous diathesis. Attention to the state of the alimentary canal should likewise be paid.

Part II., p. 167.

Opacity of the Cornea.—Mr. Walker has also made some most useful and practical remarks respecting opacity of the cornea. He says:

The process by which an opaque deposit of any kind is removed from the texture of the cornea is that of absorption.

The substances employed for the purpose of promoting the action of the absorbents are of the class termed stimulants; and the one most frequently used in the solution of the nitrate of silver. Its strength, in the first instance, should not exceed two grains of the salt to an ounce of distilled water. After a time, the proportion of the nitrate may be increased gradually up to ten grains to the ounce of water. This is decidedly the most popular of this class of remedies, and by some it appears to be regarded almost as a specific. In prescribing it, however, you must not forget the caution I formerly gave as to the long-continued use of the solution of nitrate of silver, viz., that it is very apt to leave a permanent stain of a deep olive-color in the conjunctiva.

A solution of the oxymuriate of mercury is, perhaps, as good an application as any other. One grain of the salt to an ounce of distilled water is sufficiently strong to commence with: after a time, two or three grains to the ounce will be borne, but its strength ought to be increased very gradually, as it is considerably more irritating than the nitrate of silver solution in like proportions. On the whole, it is decidedly preferable to

the latter remedy, inasmuch as it never leaves any stain on the conjunctiva, however long its use may be continued.

Various stimulants are also employed in conjunction with some unctuous substance for the removal of opacities. Of these, probably, the red precipitate ointment, the citrine or golden ointment, the nitrate of silver ointment, and the ointment of hydriodate of potass, are the best; and they also should be brought into contact with the conjunctival surface of the inferior lid, in the manner before pointed out.

A very old-fashioned remedy, and by no means the least effective, is that of blowing through a reed or quill upon the surface of the eye, some finely powdered substance, such as the oxide of zinc, white sugar, red precipitate and sugar, powdered glass and sugar-candy, and calomel and sugar. The operation of these substances is precisely similar to that of the drops and ointment—they produce a certain amount of irritation in the organ, which is presumed to increase the activity of the absorbent vessels.

Part ii., p. 108.

Iodine in Opacity of the Cornea.—The case in which this remedy was successfully employed, was one of opacity of the cornea consequent on syphilitic ophthalmia, and so considerable as almost completely to destroy vision. The iodine was given internally, and from four to six drops of the following collyrium were let fall into each eye three times a day.

R Iodini, gr. j.; potassii iodidi, gr. ij.; aq. dest. 3vj. M.

Afterward this was exchanged for an ointment consisting of iodine, gr. iss., iodide of potassium, ℥j., and lard, ʒss., of which a small portion was once or twice a day put between the eyelids. The cure was perfected in three months.

Part iv., p. 104.

Action of Hydrocyanic Acid, etc., on the Eye.—Dr. Turnbull says:

It is a well-known fact, that the eyes of those who have been destroyed by hydrocyanic acid, for a length of time after death, show none of the usual symptoms of dimness. On the contrary, the eye is clear, and the pupil much dilated. This satisfied me that the acid exerted a specific action upon the eye, which might be made available, as a medical agent, for relieving many of the diseases to which that organ is so subject.

My first experiment was undertaken with the diluted acid, by dipping a sponge into it, and rubbing it upon the forehead for the space of a few minutes, which gave the skin a very red appearance; but the patient experienced not the least sense of heat, and the pupil was slightly dilated. I continued to use this with very beneficial effects in incipient cataract, opacities of the cornea, inflammation, amaurosis, iritis, etc. Of late, I have substituted the vapor of the concentrated acid to the eye with much more decided effect, and without the slightest danger. The plan I generally adopt, is to put into an ounce-vial a drachm of the acid, and hold it in close contact with the eye, the eyelid being open, for the space of about half a minute, or until such time as the patient feels a little warmth, or the person holding the vial sees the pupil greatly dilated, and the vessels of the eye injected with blood, which is the invariable effect of the application of the acid.

The person who holds the acid to the eye should be careful not to allow the patient to smell it.

The essential oil of bitter almonds I use for the same diseases. I put

two drachms of water to two drachms of the oil in an ounce vial, and add it in the same way to the eye as the acid; but its effects are not precisely alike. The feeling induced by the oil is soothing, and generally relieves all sense of pain, even in the *douloureux*, without sensibly dilating the pupil, or causing much redness of the eye. I find it very useful in taking away the heat occasioned by the hydrocyanic acid.

Part iv., p. 117.

Division of the Muscles of the Eye in certain cases of Blindness.—

When the central portion of the cornea has become opaque, and the remaining portion continues sound, so as to render it possible for the rays of light to be admitted obliquely through the pupil, it has been suggested very ingeniously by M. Cunier, that instead of making an artificial pupil, we might divide one of the recti muscles, and thereby turn the eye aside, so as to admit the light much more advantageously through the pupil.

Part v., p. 118.

Keratoplasty, or Transplantation of the Cornea.—When the cornea is detached from the rest of the globe of the eye in an animal, and immediately reapplied by means of sutures, it unites again; and the same may take place, even when the cornea is transplanted from the eye of one animal to another, its transparency remaining uninjured.

Part vi., p. 121.

Treatment of Leucoma by Incision into the Cornea.—Two cases are related in which this treatment was adopted. The case which suggested it was that of a girl, twenty-two years of age, who had lost the left eye from purulent ophthalmia in infancy, and in whom the right was almost blind from leucoma of nearly the whole cornea. Various means had been used in vain. The author, therefore, made an artificial pupil by drawing the iris through the cornea and excising a portion of it. Severe inflammation ensued, which was with difficulty managed; but three months after, the patient not only had a good artificial pupil, but the cornea had become less leucomatous, and this especially at the part where the incision through it had been made. The next bad case of leucoma, therefore, which the author met with, he treated as follows: The patient was a lad fourteen years old, who had lost his right eye from purulent ophthalmia in infancy, and had leucoma of nearly all the left cornea. At four different times, with intervals of eight days, a common cataract knife was passed into the cornea as deep as possible without penetrating it, and was drawn out with a sliding motion. After the first three times no inflammation ensued; therefore, after the fourth, some tinct. opii was dropped into the wound three times a day. Severe inflammation set in, but it was moderated by local bleeding, and the treatment by opium was continued for two months. The leucoma became gradually less, and the patient, who could at first only discern light from darkness, became able to guide himself in walking, and to perceive the window-frames in his room. The second case was that of a man forty years old, who had leucoma of one eye from gonorrhoeal ophthalmia. It had been variously but vainly treated for a year. The author made incisions into the cornea twice, with an interval of fourteen days. After the second, a tolerably severe inflammation ensued, which required active treatment. As soon as it had ceased, sulphate of zinc and tincture of opium were again dropped into the eye, and after a year and a half, not a trace of leucoma could be seen.

Part vi., p. 125.

Pannus—Cure of inveterate Cases by the Inoculation of the Matter of Gonorrhœa.—The term *pannus* has generally been applied to an opaque vascular thickening of the layer of the conjunctiva covering the cornea, generally produced by the continuance of purulent or strumous ophthalmia, or by chronic inflammation of the cornea. During the course of these affections, especially the first, the palpebral lining becomes completely altered in structure, giving rise to what is called a granulated state of the eyelids, which by its mechanical friction on the surface of the cornea, causes its vessels to be enlarged, loosening and thickening its conjunctival layer; hence haziness, a nebulous state, or great opacity. The treatment of this affection has confessedly been one of the most difficult and tedious in surgery. Various plans have been adopted; the removal of the palpebral conjunctiva by the knife or scissors, occasional small bleedings by one or two leeches, or scarifications, alternated with the use of astringents of diacetate of lead or sulphate of copper, besides numerous other methods, have been tried in vain, and when the disease has gained considerable ground, it is too often irremediable.

In these cases the German ophthalmologists have discovered a remedy which holds out better hopes of cure than any we have yet possessed. This consists in inoculating the diseased conjunctiva with the matter of gonorrhœa, which, however, ought not to be done unless the pannus is complete. Other no less important contra-indications would be the existence of any bad habit of body, especially struma, gout, rheumatism, syphilis, etc. The virus should be selected from a case of mild gonorrhœa, or from a child laboring under purulent ophthalmia. The disease will run its course more mildly than in a healthy eye, and it has been frequently found to leave the cornea perfectly clear in ten or fourteen days, oftener, however, requiring six weeks. If one inoculation does not succeed, another should be performed. In one case it was done five times. One very curious circumstance was noticed in some of these cases, which beautifully proves the intimate sympathy which exists between the two eyes. When both were affected with the disease, it was only necessary to inoculate one. As soon as one eye began to improve, the pannus of the other likewise began to disappear, and both eyes were actually cured together. And therefore the rule now is, that when both eyes are affected, the inoculation of the one suffices for the cure of both.

Part viii., p. 136.

Nebula of the Cornea.—Simple *nebula* of the cornea may be easily removed by a solution of nitrate of silver, or, in more severe cases, by the following drops:

R Hydrarg. bichloridi, gr. ij.; aquæ dest. ʒj.

It is a curious fact, that after the application of any of the usual stimulants employed for this purpose, in a few weeks they appear to lose their effect, the eye, as it were, becoming invincible to them. It is, therefore, better to use the nitrate of silver drops for a few days; then a solution of the bichloride of mercury, then the vinum opii, which plan secures the unimpaired virtues of each. The effects produced by these various stimulants are different in almost every case, and it will be for the surgeon to regulate the precise strength capable of being employed without causing inflammation. The worst form of opacity we are called upon to treat is *leucoma*, and Dr. Hall, of Retford, admits that when this arises from ex-

tensive ulceration, which has altogether changed the nature of the corneal substance; or when extensive opacity is the result of some powerful exstrotic, which, although it may not destroy the vitality of the part, appears to have produced some chemical change in its structure, it is useless to attempt the cure of such an affection. Still, although this opacity cannot be destroyed by any means at our command, or removed by a surgical operation, this admission only applies to the central portion of leucoma. In time, its edges, on examination, will be found less opaque, and a ray of hope surrounds this dimness of vision; and although the more dense central portion does not admit of cure, something may be effected with the surrounding edges. Dr. Hall has seen cases where a steady continuance in the application of remedies has produced very great benefit, and the results are doubtless sufficiently favorable to justify their employment in all such unfortunate cases. He advises most strongly the nitrate of silver ointment, of a strength regulated to the peculiar condition of the affected eye, and also the continued use of counter-irritation, behind the ear or at the nape of the neck. He also thinks that the regular application of this ointment ought to be combined with the internal use of mercury, and a slight degree of ptialism kept up for a considerable period.

R Pulv. argenti nitratis, gr. x.; liq. plumb. diacetatis, mxx.; adipis, ʒi. Ft. ungt.

This ointment should be used every night or every second night; it always creates more or less ophthalmia, and its application must be regulated accordingly.

The preparation of mercury most useful in these cases is the hydrargyrum bichloridum. He has given it for six or eight weeks in the following form without severe affection of the gums, irritation of the bowels, or any symptom which made it necessary to intermit or reduce the doses.

R Liquoris hydrarg. bichloridi, ʒiss.; tr. cinchonæ, ʒij.; aquæ dest., ʒviiss. M. ft. haustus ter in die sumendus.

He adds, that in some cases where neither the drops of the nitrate of silver nor the ointment of this substance can be borne, the ointment of the iodide of potassium may be substituted; but although useful in some cases, it is not nearly so efficacious as the preparations already mentioned.

Part VIII., p. 203.

Conical Cornea consists of a transparent conical structure, apparently differing in no particular from the natural texture of the cornea, which is preceded and attended by no pain or inflammation; the cornea is prolonged forward, and presents to the observer a peculiar dazzling, sparkling point of brilliancy, a dew-drop or gem-like radiance, as though a piece of solid crystal were embedded in its centre. The treatment adopted by different practitioners has been exceedingly various: leeches, calomel, evacuation of the aqueous humor, constant and well-directed pressure, breaking up of the crystalline lens, the use of a strong lens, and other means, have in vain been tried to remedy this defect, and it is certain that until the external form of the cornea be changed, until this conical projection, be it a solid cone or a hollow one, be got rid of, or nearly so, the pencils of light incident to the upper portion of its surface must be unduly refracted, producing excessive and irregular convergence, and consequent confusion in the direction of the rays of light. Mr. Middlemore hit upon a very ingenious contrivance to remedy this defect—he made an artificial pupil in

another part of the iris, near its margin, where the least change of structure had occurred; and although too frequently attended with only partial success, it was occasionally very useful.

Dr. Pickford points out his own mode of practice in some very interesting cases. This practice is founded on the suggestion of Mr. Guthrie, in the "London Medical and Surgical Journal," and in his lectures in 1832; and consists in the long-continued use of emetics and purgatives. A scruple of sulphate of zinc, combined with half an ounce of Epsom salts, may be given every morning, and continued, if necessary, for twelve months: or a single grain of tartarized antimony may be substituted for the sulphate of zinc. The zinc, however, is to be preferred. If the disease depends upon some disturbance in the functions of the great sympathetic, spinal nerves, and par vagum, as Dr. Pickford supposes, producing faulty action of the nutrient capillaries and absorbent vessels of the cornea, these remedies will probably answer in many cases.

Part ix., p. 126.

Excision of the Superficial Layers of an Opaque Cornea.—In 1833, Rosas removed several of the layers of the cornea; and in 1841, Dr. Guiz was remarkably successful in a similar operation. The eyelids being fixed, the cutting consisted in the continuous and repeated introduction of the knife, following the motion of the eye-ball, through the external layers, so gradually approximating the internal parts of the cornea. The transparent layers of the cornea were at length reached; it was then, by the use of different instruments, bared to the extent of a line and a half in diameter, the innermost layers being fortunately uninjured throughout, and consequently the anterior chamber of the aqueous humor remaining unopened. The patient could see the hands of a watch, although the cornea had been previously quite opaque; but inflammation took place in four weeks from some accidental circumstances, and nearly destroyed the good effects of the operation. This, however, was subdued, and the patient continued to see very tolerably.

Part ix., p. 130.

Prussic Acid in Opacity of the Cornea.—Mr. Paterson relates the following case:

T. G., *ret.* 23, weaver, of a strumous diathesis. About eight months ago had an attack of inflammation in both eyes, to relieve which went to a hospital, and remained under treatment for about six months, without being benefited, further than getting rid of the pain and redness. Both cornea were occupied with opacities nearly in the centre, almost covering the whole expanse of the pupil, which rendered him unable to read or follow his usual employment. Had the vapor applied to both eyes daily for the space of seven weeks; at the end of which, he could read a good type, and was also able to pursue his occupation.

I may state, also, that I have applied the vapor in two cases of amaurosis, along with the ordinary remedies in this disease, with considerable success.

Part ix., p. 178.

Cyanide of Zinc in Ulcers and Opacities of the Cornea.—M. Carrier believes that preparations of hydrocyanic acid have great efficacy in causing cicatrization of ulcers of the cornea and absorption of opacities. The compound which he prefers is the cyanide of zinc, made into an ointment, in the proportion of 1 to 25 of lard.

Part ix., p. 178.

Solutions of Lead in Inflammations of the Eye.—These applications

ought never to be recommended, as it too often happens that "when a solution of salt of lead is applied to the surface of the eye, it immediately undergoes decomposition, so that an insoluble precipitate of chloride of lead is thrown down, which attaches itself to any excoriated or ulcerated spot of the conjunctiva or cornea, adhering thereto tenaciously, and in the healing of the spot becoming permanently and indelibly imbedded in the cicatrix. Even Goulard water applied to an ulcer of the cornea is very liable to produce a chalk-white, opaque cicatrix." *Part x., p. 169.*

Creasote in certain Diseases of the Conjunctiva and Cornea.—Dr Tanesville first used this remedy in diseases of the eyes in 1836, in a case of opacity in the cornea, with ulceration resulting from scrofulous ophthalmia, which was from three to four years' standing. After failing with all the known means, he used mercurial ointment, with which he incorporated a few drops of creasote, and introduced a small quantity of it between the eyelids evening and morning. This treatment was followed by rapid amelioration. The ulcers cicatrized gradually, the opacity disappeared, and in the space of two months the patient was cured. Dr. T. has since used it with the greatest success in many other cases of acute and chronic scrofulous ophthalmia. He says that he has applied it very usefully also as a topical remedy in several external scrofulous affections, ulcerations of the skin, etc., whence he concludes that it is an invaluable means in all local affections of scrofulous origin. He observes, however, that it should be employed conjointly with a suitable constitutional treatment. Simple cerate may be substituted for the mercurial ointment, or fresh lard, and this is indispensable in cases where mercurial ointment cannot be borne by the patients. The use of creasote becomes more requisite in proportion as the disease is more chronic. One of the most important advantages of creasote, used as a caustic in scrofulous ulcerations of the cornea, is its facility of application. It is sufficient to introduce a small portion of the prepared ointment between the eyelids, and to rub the latter slightly against the globe of the eye, whereas touching the little ulcers themselves with the caustic is a matter of some difficulty in children. This ointment is very efficacious also in curing inflammation of the Meibomian glands. It is also used with success in chronic vascular albugo, which is often the result of granular inflammation of the conjunctiva. *Part x., p. 171.*

Staphyloma—Affecting the Cornea alone.—Pass a curved needle armed with a fine ligature, from below upward through the cornea, the anterior chamber, and again through the cornea above; remove a portion of the cornea between the points where it has been pierced in the usual way, and bring the edges together by the ligature.

General Staphyloma.—Tap the cornea with a spear-shaped needle, and when the globe is of the normal size, apply pressure upon the lids; repeat the operation every two or three days, for six or eight times. *Part xv., p. 263.*

Sloughing of the Cornea from Defective Nutrition.—Give wine and beef-tea, with bark, quinine, or steel; and attend to the bowels. *Part xvii., p. 189.*

Treatment of Corneitis.—Generous diet, pure air, and comfortable clothing, are generally required. As to local applications, apply none whatever in the early stage, except a tepid or slightly sedative lotion, to

allay the pain. When the disease has become chronic, such stimulant applications as vinum opii, or solution of nitrate of silver, may be used, but very cautiously. Dilate the pupil occasionally by belladonna, either by applying the extract to the eyelids and brow, or by applying occasionally a piece of rag dipped in a solution of a drachm of good extract in eight ounces of water. Apply stimulants for the dispersion of the diffused opacity of the cornea which remains, but not till all inflammatory action has long disappeared. Solutions of nitrate of silver, sulphate of copper, or sulphate of zinc, will do; or a solution of iodide of potassium, ten grains to the ounce; or a camel-hair pencil dipped in water, and brushed two or three times on soap.

Part xvii., p. 201.

Cornea, Opacities of—Nebula.—Apply daily a solution of nitrate of silver, made with one to three grains of the nitrate to seven drachms of aq. dest., and one drachm of vin. opii, without the aromatic. Or, in severe cases, use the following application once or twice a day; bichloride of mercury, two grains; distilled water, an ounce. In applying these or other lotions, do not drop them into the eye, but touch the opaque spot with a camel-hair pencil, *dipped* into the solution. It is often advantageous to vary the kind of application every week or two.

Leucoma.—Even in the worst cases, where the central portion of the opacity is quite beyond the power of art to remove, the edges of the spot may be much improved by persevering treatment. Let a very small portion (not larger than a large shot corn) of the following ointment be put into the eye every night or every second night: nitrate of silver, three to ten grains; solution of diacetate of lead, twenty drops; lard, one drachm. Give a drachm of the solution of bichloride of mercury, with a drachm of tincture of bark, in distilled water, twice a day; this should be given uninterruptedly for a considerable time. And apply counter-irritation behind the ears, or at the back of the neck, by blisters usually, or, if blisters are, from any cause, inadmissible, by setons or issues. In cases of strumous children, in whom mercury is inadmissible, use appropriate local treatment, and a course of tonics, cold bathing, etc.

Part xx., p. 185.

Corneitis.—In the treatment of diffuse opacity of the cornea from corneitis, by stimulants, Dr. Jacob says, solutions of nitrate of silver, sulphate of copper, sulphate of zinc, or the combination called lapis divinus, will, perhaps, answer; but he uses a solution of iodide of potassium, ten grains to the ounce of water, or he touches the surface with a camel-hair pencil, previously dipped in water, and brushed two or three times on soap.

Part xxii., p. 357.

Cornea, Specks and Opacities of.—Under the continued use of gently stimulating applications, as the nitrate of silver, many of those depositions which apparently seriously compromise distinct vision for life, may be made slowly, but ultimately entirely to disappear. The proper laminated tissue seems to be capable of enlarging its vascular resources for its support under disease, and for the subsequent removal of diseased products to such an extent, that, if it has itself escaped disorganization, it is able, under favorable circumstances, completely to resume its transparency.

Part xxiii., p. 214.

Use of Tannin.—Employ tannin in the form of pomnade: in thick

mucilage; in fine powder; and especially in the form of a concentrated solution, one part to three of water. The affections in which this application has proved most successful have been acute and chronic blepharitis, oedematous swelling of the conjunctiva, vegetating granulations, vascular and ulcerative affections of the cornea, and especially pannus.

Part xxiii., p. 213.

Iron Spicula in the Cornea.—The difficulty of extracting spicula of iron or steel imbedded in the cornea or conjunctiva—an accident so frequent among engineers—is often so much more embarrassing than we expect, that those of the profession who are not aware that the use of the knife may always be avoided, will be glad to recollect, that by repeating one of the simplest of their experiments in chemistry—the immersing a piece of iron in solution of sulphate of copper, the iron is entirely removed. The application may be made by holding the eye open for a short time in a solution of sulphate of copper, of the strength of one to three grains to the ounce.

Part xxv., p. 233.

Opacity of Cornea.—Carefully pick off the opacity with a miniature gouge. The signs of the fitness of the cases are, the opacity being raised, and to all appearance being of an earthy nature and superficial. So long as the opacity is due to deposit of earthy material, we have every reason for operating. Malgaigne operates in these cases thus: he made an incision above the upper edge of an opacity which covered the lower part of the cornea and divided the external lamina; he then fixed the edge of the opaque portion with fine forceps, and in raising it this peeled off very easily, and the separation was completed by another incision round the lower edge.

Part xxix., p. 251.

Cornea, Vascular Opacity of.—When caused by granular conjunctiva, apply various stimulants or astringents, as nitrate of silver, sulphate of copper, acetate of lead, alum, or zinc, so as to cure the granular condition of the conjunctiva, which causes the opacity. If the granulations be small, round, vascular, and sensitive, use a mild stimulant, as ten grains to the ounce, of nitrate of silver or sulphate of copper; if large, pale, and insensible, the solid nitrate may be applied freely and frequently. The sulphate of copper is, perhaps, preferable to nitrate of silver. It may be rubbed freely over the surface daily, or every other day. Weak solutions of nitrate of silver only irritate.

Part xxx., p. 162.

Affections of the Cornea.—Chronic thickening of the epithelium of the cornea may depend upon a hypertrophied state of the palpebral conjunctiva, rubbing against the front of the cornea; for this you must rub freely the inside of the lid with a smooth piece of the sulphate of copper, and at the same time, apply the ointment of the red oxide of mercury. A collyrium, composed of four grains of the sulphate of alum, or zinc, with half a drachm of the sedative solution of opium to one ounce of water, is also very useful. *Ulceration of the cornea* readily yields to one or two touches of the solid nitrate of silver, and the internal administration of one or two purgative doses of rhubarb and carbonate of soda, combined with some tonic. When the ulceration extends deeper, it presents an even surface on its bottom, with a sharp, well-defined edge. The best remedies for this are tonics, both locally and generally. Apply daily, or every second day, the nitrate of silver, by impregnating the fine point of

a camel-hair pencil with a saturated solution of the salt, and then gently touching the ulcerated surface with it; give Dover's powder with calomel at night, and Peruvian bark with carbonate of soda during the day. The preparations of iron are sometimes very valuable. The nitrate of silver does not act as an irritant, as many suppose, but as a direct sedative, allaying the irritability of the part. If the ulceration pass through the anterior elastic lamina, opacity will remain which will be best removed by the bichloride of mercury. In *purulent and gonorrhoeal inflammations*, the nitrate is all-powerful in arresting their destructive tendency. In *inflammation of the conjunctival corneal layer*, named "*pannus*," local and general tonics perseveringly employed, along with small doses of the bichloride of mercury, will remove the disease. In very bad cases, destroy the enlarged vessels supplying the part by nipping up small portions of conjunctiva all round the cornea, and passing a very fine ligature round, tying each, and cutting them off very close. If the penetrating ulcer be situated near the centre of the cornea, the treatment must be quite different; drop a solution of sulphate of atropia (six grains to the ounce of water) upon the conjunctiva, and smear extract of belladonna upon the eyebrows; after twenty minutes, endeavor with a fine probe to free the margin of the iris from the aperture, and then touch the ulcer with a fine point of solid nitrate of silver. In *inflammation of a strumous character*, the cornea quite suddenly becomes milky in hue; this opacity is evidently in the lamellated structure, and must be treated by applying four or six leeches to the eye every second day, to stop *in limine* the morbid action. Give mercury, so as to gently affect the system, combined with Dover's powder, or the tartrate of antimony with quina. When the acute stage has passed, give the iodide of potassium, and tonic doses of the bichloride of mercury. When all inflammatory action has disappeared, apply the ointment of the red oxide of mercury every night, and, during the day, drop a solution of iodide of potassium (ten to twenty grains to one ounce of water), into the eye for some weeks; it will remove the olive-colored stain produced by the long-continued use of nitrate of silver. The preparations of iron and iodine are the best tonics for internal exhibition. Mercury, in minute doses, is an active and very safe tonic; it is certainly very efficacious in removing the opacity of structure which remains after the acute stage has passed by. If the posterior elastic lamina be inflamed, mercury should be given, so as rapidly and certainly to affect the system, combined with tartar-emetic and opium, but mercury is the essential remedy. Extract of belladonna, applied over the eyebrows, is of no small importance in allaying any irritation which exists, and in keeping the pupil dilated.

Part xxxiv., p. 184.

Circumcision of the Eye in Cases of Vascular Cornea.—In two or three cases of very severe chronic vascularity and thickening of the layer of conjunctiva in front of the cornea, Mr. Bowman, at the Moorfields Hospital, has performed the operation of circumcising the eye, as recommended by some continental surgeons. The operation consists in dissecting up with a small, sharp-pointed knife the conjunctiva at the margin of the cornea, reflecting it all around on to the sclerotic, and cutting wholly away a circular band of moderate width. If the patient be under chloroform, the dissection, although very delicate, is not one of difficulty. Its object is to cut off altogether the supply of blood to the corneal layer of

conjunctiva, in the hopes of making the latter shrivel away, and cease to be an impediment to vision. *Part xxiv., p. 133.*

Corneal Fistula.—A case lately occurred to Mr. Dixon at the Massachusetts Ophthalmic Hospital, in which a minute corneal fistula occurred in the cicatrix, left after extraction of cataract. At first, cauterization with a probe coated with nitrate of silver was tried alone, but without success. Subsequently a counterpuncture was made at the lower part of the cornea, and the cauterization at the same time repeated. Whilst the cornea was thus flaccid, the old fistula completely and firmly healed. *Part xl., p. 152.*

Strumous Corneitis.—In children, what is called strumous corneitis, is in most cases the result of a congenital syphilitic taint, and the remedies directed against it should be chosen accordingly. Mercurials and iodides should be given, at the same time supporting the system by tonics and a liberal diet. The mild mercurial ointment should be rubbed in behind the ears every night at bedtime. Ptyalism must never be induced. If the intolerance of light be great, the occasional employment of blisters behind the ear may do good. *Part xl., p. 161.*

ENTROPION.

Subcutaneous Myotomy in Entropion.—M. Petrequin recommends subcutaneous myotomy for certain cases of entropion. He says: "I have recognized the fact, that there are certain cases of entropion produced exclusively by a permanent contraction of the orbicularis muscle. The blepharospasm, so often accompanying scrofulous ophthalmia, has at once served as an indication and a proof of this fact. This, then, is truly a muscular entropion."

He gives a case of complete success, in which he performed the operation in the following manner. He placed the instrument on a level with the floor of the orbit (the lid being held extended), passed it under the skin, and the orbicularis, up to the free edge of the eyelid, taking care that no fibres escaped division superiorly; the instrument was then carefully withdrawn, assisting the division by pressing on the eyelid with the finger. *Part iv., p. 102.*

Operation for Entropion.—Raising the eyelid from the globe, so as to admit the blade of a strong pair of scissors under it, make a perpendicular incision a quarter of an inch long through the tarsal cartilage and lid, upon the temporal side, and a second upon the nasal side, avoiding the puncta, and including the entire inverted portion of the lid: evert the flap, and with a small scalpel connect the perpendicular incisions by a horizontal one through the conjunctiva and tarsal cartilage close to its ciliary margin; apply sulphate of copper to diminish the chance of adhesion in the horizontal incision, and if adhesions take place, break them up. The success of the operation depends upon the horizontal incision healing by granulation. When the inversion is very complete, and of long standing, excision of the edge of the tarsal cartilage with the bulbs of the eyelids must be practised. *Part xvi., p. 131.*

Entropion.—This disease, occurring on the lower eyelids of old persons suffering from ophthalmia, and for which an operation has generally been performed, has been treated successfully in many instances by the application of collodion, which, by the contraction it causes, overcomes the relaxation of the integument, and the eyelid resumes its normal position.

Part xxiii., p. 215.

Distichiasis.—The following method of treating single hairs, when inverted, is worthy of attention. Place the horn spatula within the lid, and make an incision with a small knife down to the root of the inverted lash, wait until the hemorrhage has ceased, and then apply a point of nitrate of silver down to the bottom of the wound, by means of a portecautique, and remove the lash. This plan seldom fails, though it frequently destroys two or three of the neighboring cilia.

Part xxviii., p. 330.

Entropion and Trichiasis.—After a deep wound of the scalp, a firm and depressed cicatrix remains, and the growth of the hair at this part is directed toward it. In the same manner, by excising deeply a narrow slip of skin, muscle, and fibro-cartilage just above the roots of the eyelashes, a firm cicatrix is caused, and the lashes are directed outward or toward the cicatrix; by this means the marginal portion of the orbicularis is involved in the cicatrix, whilst the eyelashes are preserved; the removal of merely a portion of skin is very ineffectual, on account of its slight connection with the subjacent tissues.

Part xxxviii., p. 190.

Use of Tincture of Iodine.—The continued application of the compound tincture of iodine to the upper lid, has the effect of causing gradual contraction of relaxed tissues; in this way it is of the greatest use in cases of ptosis, causing contraction of the relaxed levator muscle, and in trichiasis and entropium, eversion of the inverted edge of the lid.

Part xxxviii., p. 193.

IRIS.

Spirits of Turpentine in Iritis.—Mr. Arnott strongly recommends the internal administration of the spirit of turpentine in iritis, after the more active inflammatory symptoms have been reduced by bleeding and tartar emetic. This remedy he has found to succeed in curing the disease when mercury and the strictest antiphlogistic regimen had failed. The spirit of turpentine was administered, as recommended by Mr. Hugh Carmichael, in emulsion in the dose of a drachm three times a day; and the only objection to the employment of the remedy was the difficulty or even impossibility of some stomachs retaining it beyond a certain length of time. This, however, might be obviated by diminishing each dose, but increasing their frequency.

Mr. Foote believes that turpentine acts, in these cases, by inducing irritation in the mucous membrane of the intestinal and urinary canals. He quotes and approves of Mr. Carmichael's formula for its administration.

R Olei terebinthinæ rectificati, ℥j. vitellum unius ovi; tere simul, et adde gradatim emulsionis amygdalarum ℥iv., sirupi corticis aurantii ℥ij.

spiritus lavandulae compositi Ziss., olei cinnamomi guttas tres vel quatuor. Misce; sumat cochlearia larga duo ter de die. *Part I., p. 57.*

Syphilitic Iritis.—The administration of mercury recommended, so as to excite its full effects upon the system. *Part I., p. 122.*

Changes in the Color of the Iris Produced by Inflammation.

TABLE OF THE MORE COMMON CHANGES IN THE COLOR OF THE IRIS, OBSERVED DURING AND AFTER INFLAMMATION.

Natural Color of the Iris, or of the inflamed portion of it.	MORBID COLORS.		
	First Stage of Inflammation, before lymph is effused.	Transition Stage—Increased vascularity, lymph commencing effusion, and commencing fusion of lymph.	Third Stage, when lymph is effused, or in the sequelae of the disease.
Blue.	Purple of a campanula, imperial, or plum shade.	Black, hornblende black, or greenish black.	Dingy green, or green, or greenish green.
Bluish grey, with yellow markings.	Basal black, or grayish black.	Applebark green.	Yellowish green.
Basal black.	Brownish black.	Chestnut.	Hazel, wood brown, light olive, or saffron yellow, according to the depth of the original color.
Gloves brown.	Reddish black.	Lighter chestnut, or hazel.	
Black	Brownish red, or the first.	Wood brown, or very light hazel.	Tawny orange or amber yellow.
Citron, or more or less of a yellow hue.	Deep orange.	Lighter orange.	Light yellow.
Transparent and nearly colorless—(the anterior sarous layer).	Arterial red.	Reddish orange.	Very light, or pinkish yellow.

In the treatment of iritis, a minute attention to the color of the iris is highly useful. (a) In determining when the employment of mercury becomes a *sine quâ non*. Incipient rheumatic iritis may be often cured by leeching, colchicum and sudorifics, which frequently require to be used for some time before they remove the disease. But, whenever there occurs a change in the color of the iris, indicative of the commencing effusion of lymph, mercury (unless most especially contra-indicated by some other circumstances in the condition of the patient) must be administered, and speedily too, or else the mobility of the iris will be permanently impaired, or extensive adhesions, and even closure of the pupil, be almost inevitable. (b) In chronic cases, the progressive restoration of the natural color of the iris is a good test of the efficacy of the means employed, whether mercury, iodine, or oil of turpentine; and for deciding on the propriety of continuing their use. (c) Whenever the change of color in the iris indicates the recent and extensive effusion of lymph into its interstices, there is great danger of a slow and gradual closure of the pupil taking place for some weeks and months after all inflammatory action has subsided, and the cure apparently complete. In such cases, the daily use of belladonna, or hyoscyamus, to keep the pupil moderately dilated, becomes an essential point of treatment. (d) When the pupil is closed, either by lymph, or by entanglement of the edges of the iris in a penetrating ulcer of the cornea, or in the cicatrix, after the extraction of a cataract, or from other causes, and

an operation for an artificial pupil is contemplated, any change in color, indicating the matting together of the iridal fibres with lymph, should be carefully noted. In such cases, the prognosis as to the probable utility of any operation, such as "incision" (*iridotomia*), or "simple ciliary separation" (*iridodialysis*), the success of which depends on the contraction of the liberated portion of the iris, should be extremely dubious, and a preference given to "excision" (*iridectomy*), or to compound ciliary separation, the separated portion being either drawn out and cut off (*iridec-tomedialysis*), or left strangulated in the wound of the cornea (*iridencleisis*).

Part iii., p. 98.

Treatment of Iritis and Conjunctival Inflammation, by Belladonna Injections.—Mr. Bulley relates several cases in which this treatment seemed highly beneficial:

The lotion which he uses is injected into the eye by means of a syringe; and in the application of the douche or irrigation, he uses different ingredients in solution, according to the particular structure involved. Thus, in case of incipient iritis and atonic ophthalmia, he used a lotion of belladonna with sulphate of copper; but in others, left out the copper. If the iris be the seat of disease, and the conjunctiva likewise affected, he uses the following lotion; extract of belladonna, 20 grains; sulphate of copper, 5 grains; water, a pint. To be injected frequently during the day, with a clean brass syringe, with an ivory pipe, capable of holding from three to four ounces of the fluid; "at first it is necessary to throw the stream upon the closed lids, at least for the first few times. By degrees the patient becomes inured to the shock," and can bear it upon the eye itself.

Part v., p. 143.

Rheumatic Iritis.—The combination of hydriodate of potass with liquor potassæ highly recommended.

Part viii., p. 25.

Effect of Temperature in causing Reflex Actions.—"Contractions of the iris are produced by drawing cold water into the nostrils."

Part viii., p. 47.

Injuries of the Iris—Artificial Pupil.—Mr. Estlin says:

The liberties that may be taken with the iris is a matter of great importance with reference to the operations for artificial pupil. I am inclined to believe that many persons with extensive opacities on the cornea, especially in cases where suppurative ophthalmia has preëxisted, are condemned to perpetual blindness, to whom a valuable degree of vision might be given by the removal of the iris opposite any clear portion of cornea that may be left. In every case of the kind, where there is no useful sight, if any of the cornea is clear, and the eye be otherwise healthy, the operation ought to be tried; and I have been surprised to find with how small a portion of cornea remaining transparent, a person may have a degree of vision to some extent useful, and, in a great degree, a source of comfort to him. And in such cases I prefer the operation of tearing away a portion of the iris, and cutting it off. A small section is made in the cornea near to the clear portion, the iris drawn out with a hook or forceps, and as much cut off as is practicable. Care will be necessary in this operation to avoid injuring the crystalline capsule.

[Mr. Estlin describes a mode of making an artificial pupil, which he has practised for many years. It is done with a small knife used originally by

Sir W. Adams, called an iris-knife, and figured in Mackenzie's work. It has generally been used by being introduced behind the iris through the sclerotics, and then pushed through the iris into the anterior chamber. Mr. Estlin says:]

I have been accustomed to use this little instrument differently, inserting it through the cornea, near the temporal canthus, close to the sclerotics, with the flat part of the blade toward the iris. This instrument being passed through the anterior chamber to its nasal extremity, the handle of the knife is turned a quarter of a circle, so as to bring its cutting edge against the iris, and it is then withdrawn by a quick movement, that depresses the point of the instrument upon the iris, so as to make a horizontal cut across that membrane.

I have found this mode of making an artificial pupil particularly successful in cases where the natural pupil has closed after extraction of the cataract.

Part viii., p. 142.

Palsy of the Iris.—It sometimes happens that a patient is affected with blindness from a palsy or excessive dilatation of the iris, which probably admits such a quantity of light to be admitted into the eye as to overpower the retina. This seems probable from the fact that occasionally, when the patient looks through a little hole in a card, his vision is considerably improved. It is very possible from the dilated and insensible pupil, and consequent blindness, that a practitioner might mistake such a case for amaurosis; and as the treatment of the one for the other would be highly improper, it is necessary to be aware of the existence of such cases. Mr. Ure and Mr. Arnott relate interesting cases of this blindness from an insensibility of the iris, and the former especially reminds us of the efficacious treatment of Serres, which consists of cauterizing the circumference of the cornea by nitrate of silver.

The solid caustic should be scraped to a point, and gently wiped round the circumference of the cornea nearly at its junction with the sclerotics; this may be repeated every day or two, according to its effects, taking care not to produce too severe inflammation. But although this treatment may be occasionally very successful in an atonic state of the orbicular fibres of the iris, we should be disposed to try milder measures first, such as the vapor of ether or electricity. We should also recommend the use of turpentine, which has such a remarkable influence over the iris in many cases where every other remedy has failed. This may be given in doses of half a drachm or a drachm every night and morning, or thrice a day.

Part viii., p. 156.

Night Blindness—Oil of Turpentine.—In two cases of this description, in which the patients were seized with a total blindness every evening, the moment the sun set, although in other respects perfectly well, Mr. Kidd tried the whole routine of medicines without effect. The iris alone showed symptoms of disease; the rest of the eye was healthy. The iris was very interrupted and sluggish in its movements, and evidently very insusceptible of its usual stimulus, the pupil contracting very little even at the approach of the strong glare of the sun.

Being aware of the action of turpentine on this part of the eye, Mr. Kidd ordered the following mixture with excellent effect:

R. Ol. terebinth. ; ol. ricini, aa. ʒj. ; mist. camphoræ, ʒiv. ; liquor. potassæ, ʒj. ; i℥ss. opii, grt. x. Ft. mistura.

Half an ounce to be taken every night and morning. The patients were cured in a few days.

It is often difficult to continue the use of turpentine on account of its disagreeable nature. Bouchardat recommends the following formula:

Take of gum acacia, ten grammes; mix it with ten grammes of water; add of white honey, fifty grammes; oil of turpentine, fifty grammes; carbonate of magnesia, q. s. Make a soft electuary.

The dose is from 2 to 10 grammes (36 to 180 grains) a day in unleavened bread. In some cases a little laudanum may be added.

Part viii., p. 157.

Effect of the Anisodus Luridus on the Pupil.—The *anisodus luridus*, a perennial herbaceous plant belonging to the natural family of the *solaneæ*, was brought from Nepaul to Europe in 1824. In our gardens it often does not come out till the middle of June; it then springs up with astonishing rapidity, and soon surpasses the *atropa belladonna* in height. It strikes its roots deep into the ground, and withstands the severest winters. It is of a pale green color. A tincture prepared with an ounce of the dried leaves to eight ounces of alcohol at 20 degrees, when given to different patients, produced an extreme dilatation of the pupil, the highest dose being twenty drops in the twenty-four hours. Two of them suffered from amaurosis for a short time, and their blindness did not go off till the medicine was omitted.

Part ix., p. 88.

Treatment of Inflammation of the Eye.—Dr. Jacob remarks that the treatment of inflammation of the eyeball ought to be upon the same general principles as that of inflammation in other parts. Bleed and give nauseating medicines, purgatives and low diet, and stimulate the liver, kidneys, and skin, to rid the fluids of pernicious ingredients. In the second stage, to prevent or arrest the consequences of inflammatory action, give mercury or iodine, bark, colchicum, turpentine, etc. In the third stage, when the inflammatory action has subsided, apply belladonna, and give mercury or iodine in smaller doses, and for longer periods, with local stimulation and cutaneous irritation.

When the disease has been treated with mercury, and returns, try depletion and antimonials, with confinement to bed, and low living, for two or three days before you again resort to that remedy. Give tartrate of antimony or James's powder, so as at first to cause nausea, and afterward diaphoresis. Mercury is the sheet anchor, given so as just to affect the gums: at first, give three grains of blue pill, three grains of compound colocynth powder, and one-eighth or one-tenth of a grain of tartrate of antimony three times a day, for a couple of days; then five grains of blue pill with the same quantity of antimony, for two days more; and finally five grains of blue pill three or four times a day. If it affect the bowels, add a little opium to it. This produces a mercurial effect upon the system in seven or eight days. Or two grains of calomel and a quarter of a grain of opium may be given every four or six hours, if we wish to affect the system sooner. The length of time we are to continue the mercury must be decided by its effects.

Iodine, turpentine, colchicum, and bark, are valuable where the inflammation is modified by specific disease, or constitutional derangement, or where mercury has already been given, or cannot with safety be used.

From the very commencement of an attack of iritis, extract of bella-

donna should be used. Mix it with water until it acquires the consistence of cream, and paint the eyelid, brow, and upper part of the cheek with it; let it dry, and then apply it again, and cover it with a little damp linen, and keep it moist by applying a lotion made with two drachms of the extract to eight ounces of water. If its application be not found comfortable, it need not be applied more than once or twice in twenty-four hours. When its application to the skin does not affect the pupil, drop a little of the solution upon the conjunctiva, even during the inflammatory attack; its effects soon pass off. It is best to apply it in the morning. *Part xiii., p. 308.*

Atropia and Belladonna.—Make a solution of one, two, or three grains of atropia to 3j. of distilled water; add a drop of nitric acid to render it soluble, and a drop of spt. vini to make it keep. Introduce a drop of one of these solutions between the eyelids, which will keep the pupil dilated from four to ten days, according to the strength of the solution used.

It may be useful in iritis; also capsulitis; also when it is wished to break up recent adhesions between the iris and lens; to withdraw a protruding iris from its position; in central cataract; or in central opacity of the cornea, where the pupillary margin is attached to the back of the cornea, etc. Its use is less marked when conjunctivitis is present, than in a healthy eye, and its effects are more evanescent.

In ulcers of the cornea, belladonna is of special service; by it synechia anterior, etc., may be prevented. In cases of rupture from ulceration, with hernia of the iris, apply the solution of atropia close to the eyelids, and keep them closed with plaster; smear the eye and brow with the extract of belladonna, and, if necessary, use leeches to the temples, just over the malar bone; apply blistering and use such constitutional treatment as is calculated to subdue inflammation, and the further spread of the sloughy or ulcerating process.

In neuralgic affections of the eye, intermitting and unattended with inflammation, or obvious alteration in the structure, or motion of the organ—try belladonna internally, from one-sixteenth to one-sixth of a gr. in solution three times a day. In the old and inveterate photophobia or ophthalmia, attended with vascular cornea, of discharged soldiers, the internal use of belladonna is marked. *Part xiv., p. 238.*

Iritis, Rheumatic.—In the active form, abstract blood, purge, and attend to the function of the skin. Follow these measures by the administration of tonics, otherwise a tedious subacute stage will follow. On the slightest appearance of fibrinous effusion give mercury; and blister for opacity of the cornea. *Part xvii., p. 201.*

Iritis, Chronic.—Great benefit has been derived from the long-continued use of small doses of the bichloride of mercury, given in solution. *Part xx., p. 185.*

Hernia of the Iris; Rapid Retraction by the Use of Atropine on both Eyes.—The "Philadelphia Medical Examiner" mentions a case of wound of the cornea, under the care of Mr. Moorehouse, where the iris was herniated. Attempts at reduction were made by touching the prolapsed iris with a solution of atropine (five grains to the ounce of distilled water), but with little result. Mr. Moorehouse then thought of taking advantage of the consentaneous action of the two irides, and applied the solution to both eyes. This method succeeded at once, the iris retreated, and the wound of the cornea soon healed up. *Part xxiv., p. 251.*

Treatment of Iritis.—Having reduced the inflammation by ordinary measures, give mercury according to the severity of the case and the vigor of the patient, one or two grain doses three times a day, until the system has become influenced. When the acute stage has passed, a few grains of powdered bark assists in reëstablishing tone in the vessels, and repressing lingering congestion. A corresponding change in diet should also now take place. Aconite is sometimes an admirable remedy, but it is uncertain, and sometimes dangerous in its action. It may be used in those cases which resist ordinary treatment, in doses of ten minims of the tincture three times a day. The greatest caution should be observed in its use. In the *syphilitic disease*, if there be racking pain about the globe, forehead, and temple, we may give an opiate, when the dilatation of the pupil is fully effected by belladonna. We may use simple opium, or the pulv. ipecac. co., or a preparation of morphia, or apply the mercury and opium ointment or the belladonna liniment to the seat of pain. In all cases of iritis, we should apply belladonna round the orbit, keep the patient in a darkened room, and abstain from giving opium until dilatation of pupil be effected. In syphilitic iritis turpentine is the remedy introduced by Mr. Carmichael, of Dublin, and may be given with great advantage. One drachm may be given three times a day, made into an emulsion. Blisters are very valuable, but should be applied behind the ear, or to the nape of the neck.

Part xxviii., p. 245.

Photophobia.—A few drops of chloroform evaporated from the palm of the patient's hand, and held near the eye, will generally allow a photophobic eye to be temporarily opened for the purpose of examination by the surgeon.

Part xxxviii., p. 355.

ARTIFICIAL PUPIL.

Made in the Superior Eyelid.—In a case of contraction of the orbicular muscle of the eyelid, which had resisted every remedy, even the twice-repeated section of the muscular fibres, M. Gerold resorted to the following operation, which he has been the first to propose and to execute. After introducing a small flat piece of wood, well oiled, underneath the superior eyelid, exactly opposite the pupil of the eye, he made a crucial incision, which completely divided the skin, the muscle, and the mucous membrane. The external skin was then dissected off the four flaps thus formed, and the mucous surface was turned outward, and fastened to the base of the flaps, so that the mucous membrane formed the circumference of the artificial opening. No accident supervened, and vision was restored; the patient wore spectacles as a precautionary measure.

Part ix., p. 182.

Artificial Pupil.—A very useful instrument is employed by Mr. Bowman in these cases, consisting of a needle-pointed hook, which enables the operator to enter the cornea, and drag out the iris with the same instrument: thus there is less chance of the escape of the aqueous humor, and a very small opening is made. There is no difficulty in withdrawing it. A little care is necessary lest in using the hook the lens be wounded by the needle-point projecting beyond it. It is peculiarly adapted to cases where extraction has previously been performed.

Part xxxvi., p. 207.

Formation of Artificial Pupil by Galvano-Cauterization.—An ingenious

suggestion has been made by M. Taignot in the "Moniteur des Hôpitaux" for making an artificial pupil by galvano-cauterization. He passes in the platinum end through an aperture in the external circumference of the cornea, and applies it to the point he wishes to influence. By this means the size, shape, and position of the pupil can be accurately regulated. Thus far it is deemed only applicable to subjects who have already undergone the operation for cataract; as, in the case of the lens being present, its opacity would be induced.

Part xxxvii., p. 188.

Artificial Pupil—Iridodesis.—Mr. Critchett's operation. The usual way of operating for artificial pupil is often clumsy; the pupil is too large and irregular, and often too near the cornea. You cannot regulate the size and place by the old method. Try a new way by tying the prolapsed iris in the following way: The patient, if at all restless, being placed under the influence of chloroform, the wire speculum is inserted, and with a pair of forceps, a small fold of the conjunctiva close to the cornea is held so as to fix the eye. An opening is then made with a broad needle through the margin of the cornea, close to the sclerotic, and just of sufficient size to admit the canula forceps; with it a small portion of the iris, near, but not close to, its ciliary attachment, is seized and drawn out to the extent considered necessary to enlarge the pupil; a piece of fine floss silk, previously tied in a small loop round the canula forceps, is slipped down and carefully tightened around the portion of iris made to prolapse, so as to include and strangulate it. This manœuvre requires a little practice and dexterity, and is best accomplished by holding each end of the silk with a pair of small forceps with broad extremities, bringing them exactly to the place where the knot is to be tied, and then drawing it moderately tight. A single tie is sufficient; the ends are then cut off, and the operation is complete. Little or no irritation usually follows. The small portion of iris included in the ligature speedily shrinks, leaving the little loop of silk, which may be removed from the eye about the second day. By this method, the size, form, and direction of the pupil can be regulated to a nicety.

Part xxxix., p. 241.

LACHRYMAL AFFECTIONS.

Fistula Lachrymalis.—In cases of fistula lachrymalis, Dr. Parrish, of Philadelphia, recommends us to place more reliance on dilatation than we are at present accustomed to do. He thinks that as dilatation is so successful in stricture of the urethra, the same principle ought to be adopted in these cases. Instead of using fine catgut, as recommended by Beer, or other means mentioned by various authors, Dr. Parrish uses a bougie made of waxed linen, which he can have made of any size. It is made by dipping a piece of fine linen into white wax, in a melted state, and suddenly withdrawing it. It is then allowed to cool, and cut into portions which, when tightly rolled, form a bougie of any size which may be required. This kind of bougie may be cut or bent with great ease, and be made smaller by unwrapping, without the necessity of having a great number of sizes already prepared. After reducing the inflammation round the fistulous sore, Dr. Parrish introduces one of these fine bougies down to the strictured part, and there secures it by adhesive plaster to the external parts. This may be removed in a day or two, and again introduced, or a larger one may be used, if possible, so as to dilate the fistulous orifice, and to induce a more healthy action in the mucous

surface of the sac and duct. By perseverance, the bougie may ultimately be made to pass through the whole extent of the canal, and after this, bougies of larger size may cautiously be persevered with till the duct be sufficiently dilated. *Part ix., p. 155.*

Fistula Lachrymalis.—Suppose, says Mr. Liston, that you have a fistula lachrymalis to deal with, that there has been inflammation and supuration of the sac at the inner corner of the eye, and that this collection has been opened, or has been evacuated by ulceration, and the coverings may have so far contracted, but still the fluids from the eye and sac are discharged upon the cheek, you must endeavor to restore the nasal duct. For this purpose an incision must be made into the sac. It is of no use to attempt passing a probe through the fistulous opening. You must introduce a narrow bistoury through the sac down into the duct, and lodge it fairly in the bony canal, or you may employ a sort of sharp-pointed grooved director.

You are told that it is necessary to feel for the tendon of the orbicularis palpebrarum, but when there has been inflammation present, and this always precedes the formation of matter and fistula, you can feel nothing of the kind, you must trust to your eyes and your anatomical knowledge. Knowing the direction of the canal, you put your knife behind the margin of the bone, behind the nasal process of the superior maxilla, push it down at once, and lodge it fairly in the canal. In that way you are in a position to make the passages pervious. If you follow the knife with a probe, withdrawing the knife while you introduce the blunt instrument, you come at once into the nose, and there will possibly be some slight flow of blood from the nostril. If, after a few days, you close the nostril and make the patient expire forcibly, the blood and matter will be thrown up into the corner of the eye, and then you are sure that you have properly effected your object. You must remember that the bony parietes of the nasal duct are, in some respects, very thin. The intentional perforation of them was contemplated, proposed and even practised by our forefathers. When any difficulty arose in getting the natural canal restored, the os unguis was bored through with a large *trois quarts*, and even the actual cautery was by some resorted to, in order to make a more permanent opening for the passage of the tears and discharges into the nose. This proceeding is now, happily, abandoned, and, I may say, forgotten. But unintentionally, and from ignorance, the posterior part of the canal is occasionally penetrated by the knife or probe. If the point of the instrument, instead of being directed downward and slightly backward in the course of the canal, is pushed more directly backward, it may be made very readily to penetrate the ethmoid bone, and it will then be lodged above instead of below the inferior spongy bone—a serious blunder enough. But it is necessary to keep the passage pervious, and with this view, it has been recommended to introduce into the nasal duct, from above, various sorts of tubes—a very unsurgical proceeding it seems to me—but one practised by many good surgeons, and by one in particular, very eminent in our profession, the late Baron Dupuytren.

Various forms of tubes have been recommended, some of silver, some of gold, but I would not advise you to insert any of them, whatever their composition or shape, because, as foreign bodies must cause inflammation, you will be under the necessity of removing them, and if this be done, the patient, after all his sufferings, will be in the same state as before.

But suppose that a patient comes to you who has had a tube put in by some one else—it is productive of great irritation of the parts and suffering to the individual; how are you to get it out? The tube is out of sight, the skin has closed over it, there is an abscess about it. You divide the skin, and you feel the end with the point of your bistoury or with a probe, but you cannot insinuate a pair of forceps to seize or extract it. The tube is generally lodged deeply and pretty well fixed, and you must introduce a probe, made with a screw, into the metal tube; by a turn or two you fix it firmly, and thus remove it. These probes are often very useful in ascertaining whether portions of bone are loose, in removing small sequestra.

I have stated that you are not to employ a tube in the treatment of lachrymal fistula; but you may, with great propriety, use what is called a style. You introduce a bit of a small wax bougie in the first instance, or you had better provide yourself with a silver probe of proper length, and use that at once, making it follow the knife or grooved director. If there is a large ulcerated opening, you may put a bit of thread to prevent its slipping down out of sight, which sometimes takes place. If you have not a very large opening, you lodge the style in the duct, and leave the nail-head projecting. You must have styles of different sizes and lengths to suit different individuals. You, of course, do not expect that a style suited for an adult male should lie comfortably in the nasal duct of a young female, in whom the bones of the face are much smaller. The style should be of such a length that the head merely appears at the corner of the eye, whilst the lower end rest on the floor of the nostril, or nearly so. There may be a little excitement for a time, consequent on the lodgment of the style, with some discharge, but this soon finds its way along the sides of the probe and into the nose, gradually diminishing in quantity. The actions of the parts soon become quiet, and the patient wears the style without inconvenience, and it can be taken out night and morning, wiped and replaced without pain. If he chooses he may leave it off after a while during the day; there is a mere pin-hole, which is scarcely observable, and through it a small style may be introduced at night and removed in the morning. This is a rational and proper mode of proceeding to keep the parts pervious. How long the style is to be worn, and at what period it can be discontinued without risk, must depend on circumstances.

The practice followed for many years past in Italy, in the treatment of chronic inflammation of the lachrymal canal, is to introduce a minute fragment of the *lunar caustic* into the fistula, if such be present; or by a small puncture made into the sac, if not. An acute inflammatory action is immediately set up; but by the following day this is usually much diminished, and ceases entirely in three or four days afterward. The engorged parts then gradually subside, the purplish color changes to a white, the tears resume their natural course, and every trace of the disease vanishes. In most cases, a single application of the caustic is sufficient. Professor Lallemand very generally adopts this mode of treatment.

Part x., p. 137.

Lachrymal Obstruction.—Examine the condition of the mucous membrane of the nostril, and if it is found thickened and congested, or ulcerated, apply to it, by means of a camel-hair brush, an ointment composed of three parts of unguentum hydrargyri ammonio-chloridi, to one part of oil of almonds; or apply in the same manner a solution of nitrate of silver, four

grains to the ounce. At the same time, attend carefully to the general health.

Part xix., p. 207.

Epiphora.—The term "Epiphora" is here restricted to a watery state of the eye, produced by some obstruction in the puncta or canaliculi. There is scarcely any affection so trivial which the surgeon undertakes with less hope of ultimate satisfaction; for all know that some cases resist all ordinary measures, and yet present no obvious indication for their treatment.

A frequent cause of this disease is displacement of the inferior punctum, so that the tears never reach the orifice at all. The canal must be slit up from the punctum, to such an extent as to carry back the orifice to that part of the conjunctival surface where the tears are collected. The wound should be kept open for a few days, that the canal may be converted into a groove.

Part xxviii., p. 249.

Lachrymal Sac—Injection of.—Mr. Obre has brought into notice an ingenious invention for injecting the lachrymal sac. A small silver canula is attached to a small vulcanized India-rubber bag. The canula being introduced into the meatus, a slight pressure on the bag propels the fluid.

Part xxix., p. 255.

Fistula Lachrymalis.—Instead of passing the knife into and along the lachrymal canal, make a simple puncture into the abscess or lachrymal sac, and then, introducing the style, guide it to the orifice of the canal, and with gentle pressure pass it along the tube.

Part xxxi., p. 108.

Division of the Tear Punctum and its Canal.—For the performance of this little operation, a very fine and sharp pair of scissors are preferable to a knife and director, as the operation is accomplished much more rapidly and easily; the slit is always perpendicular and never reunites. The greatest width of the blades of the scissors should be one-sixth of an inch, and their length from rivet to point half an inch.

Part xxxvii., p. 185.

Obstructions of the Lachrymal Passages.—The surgeons of the Edinburgh Infirmary bear strong testimony as to the efficiency of Mr. Bowman's plan of treating these cases. This consists in slitting up the lower canaliculus upon a grooved probe, as far as the caruncle. The real place and degree of obstruction can then be readily ascertained, and treated with silver probes of various thicknesses. An opening through the skin is thus avoided.

Part xxxviii., p. 195.

Patency of the Slit-up Canaliculus.—In all cases it is necessary to pass a probe occasionally through the wound made by the knife in Bowman's operation, in order to prevent adhesion of the two opposite surfaces. But where the operation is done for everted punctum, from thickened lower lid, when a larger opening and one nearer the eye is desirable, or in the case of timid nervous people, or children, who require much restraint during the operation, or when from any other cause subsequent interference is attended with difficulty, it is better at the time of operation to excise with the scissors a small portion of the posterior lip of the wound. This will effectually prevent adhesion.

Part xxxviii., p. 197.

OPIPTHALMIA.

Strumous.—Mr. Walker gives the following treatment:

Strumous ophthalmia, according to my experience, always more readily

But suppose that a patient comes to you who has some one else—it is productive of great irritation to the individual; how are you to get it on sight, the skin has closed over it, there is an abscess the skin, and you feel the end with the point of probe, but you cannot insinuate a pair of forceps. The tube is generally lodged deeply and pretty well. Introduce a probe, made with a screw, into the middle of the tube, and thus remove it. These are useful in ascertaining whether portions of bone are small sequestra.

I have stated that you are not to employ a lachrymal fistula; but you may, with great advantage, employ a style. You introduce a bit of a small wire, or you had better provide yourself with a style, and use that at once, making it follow the direction of the tube. If there is a large ulcerated opening, you may use it slipping down out of sight, which is not a very large opening, you lodge the nail-head projecting. You must have a style to suit different individuals. You, of course, suited for an adult male should lie horizontally, the female, in whom the bones of the face are of such a length that the head of the style, whilst the lower end rest on the nose, may be a little excitement for the eye. The style, with some discharge, is introduced, the probe and into the nose, and the actions of the parts soon return to the state without inconvenience, and the style is removed and replaced without pain. The style is used during the day; there is no need to remove it through it a small style is introduced in the morning. This is a recommendation. The various medicinal parts pervious. The various medicinal parts can be discontinued, such as the mineral acids, quinine, can alone be employed.

The practice of the treatment of chronic inflammation of the eye, by some practitioners to introduce a minute fragment of struma, and or by a small piece of struma, such cases it often produces very much action is immediate, and it has any control over the inflammation, diminished, and has expressed himself very much. The treatment recommended by Lugol is the following: Potash, ss .; iodine, gr. iij. ; water, ss .; mix. A teaspoonful three times a day. The glands, the following liniment: Potash, ss .; lard, ss .

La Roche, who was adverse to the use of struma, has placed the greatest reliance upon struma in the treatment of strumous cases.

yields to the stimulant treatment, when properly employed, than it does to the antiphlogistic. I make these observations as definitely applicable and true, whether the disease be in the acute or chronic stage; whether it be more or less intense; whether it be confined to the conjunctiva, or have extended to the cornea, or even to the sclerotica; the principle in all these cases is still the same, viz., the necessity to use stimulants. But the stimulants to be employed must be selected in accordance with the severity of the attack. If the attack be slight, then the milder stimulants will be sufficient; such, for example, as the sulphate of zinc solution and the zinc ointment; if somewhat more severe, the sulphate of copper solution and the red precipitate ointment; if very active, the sulphate of copper in substance; or the nitrate of silver either in solution, ointment or substance.

In an acute case I should generally prefer the nitrate of silver pencil, applied directly, but lightly, to the conjunctival surface; whereas, in one of a less intense character, I should probably use the sulphate of copper in substance, as well as some of the other stimulants before mentioned.

The only local adjuvants I deem necessary are such as have a sedative tendency, *e. g.* warm water, poppy fomentation, saturnine lotion in a tepid state, or a solution of the extract of belladonna. The last, more particularly, is often productive of great relief where the eyes are excessively intolerant of light. In its effects on the iris, we have indubitable evidence that it acts immediately, and in a peculiar manner, on the nervous system of the eye. The liquor opii sedativus, in the proportion of a drachm to an ounce of water, is also highly extolled by some surgeons as a local application.

Counter-irritation, by means of blisters, setons, or issues, I scarcely ever resort to. Blisters, more particularly when applied behind the ears, are very apt to be followed by many disagreeable results.

In the management of more obstinate and protracted cases, I must remind you of the caution I formerly gave, as to the excessive employment of the nitrate of silver; and, therefore, as soon as the symptoms improve, you may properly substitute the sulphate of copper for the nitrate of silver.

The internal treatment should be such as is calculated to increase the energies of the system. The various medicinal agents known under the appellation of tonics, such as the mineral acids, chalybeate preparations, and more particularly quinine, can alone be expected to be productive of benefit.

Iodine is thought by some practitioners to possess properties which render it useful in the treatment of struma, and particularly of glandular enlargement. In such cases it often produces very decided benefit; but I very much doubt if it has any control over the affections of the eye, although M. Lugol has expressed himself very strongly to the contrary. The formula recommended by Lugol is the following:

Hydriodate of potash, ℥j.; iodine, grs. iij.; water, ℥iij.

The dose is half a teaspoonful three times a day, for children. For the enlargement of the glands, the following liniment is recommended:

Hydriodate of potash, ℥j.; lard, ℥j.

M. Dupuytren, who was adverse to the use of antiphlogistic remedies, appears to have placed the greatest reliance upon the internal administration of belladonna in the treatment of strumous ophthalmia.

Hydrochlorate of Baryta in Strumous Ophthalmia.—Dr. Payan agrees with Mr. Phillips in extolling the efficacy of barium in scrofulous diseases. Dr. P. having observed that this remedy was used with excellent effect by Lisfranc in scrofulous diseases, he resolved to try it in an obstinate case of ophthalmia accompanied by a high degree of photophobia. The patient was six years of age. He dissolved two grains of the hydrochlorate in three ounces and a half of "eau sucrée," and this quantity was taken in portions during the course of the day. No particular effect being produced, on the third day three grains were taken, and the dose was gradually raised to ten grains in the course of the day. On the twentieth day the medicine was discontinued, the patient being considered nearly well. In another case, twelve grains in the course of the day were taken with excellent effect, and without any symptoms of gastric irritation being produced. During the administration of the remedy, Dr. Payan orders a light and sparing diet, considering that harm is frequently done by the tonic medicines and stimulating regimen which are generally ordered as a matter of course in strumous ophthalmia.

Part i., p. 111.

Oxymuriate of Mercury in Strumous Ophthalmia.—Dr. Hamilton refers to the ordinary treatment of this obstinate disease, such as the use of some of the various tonics, bark, quinine, columba, rhubarb, the preparations of iron, of iodine, and particularly of hydriodate of potass, mercury, leeches, blisters, issues, the citrine and other ointments, vinum opii, zinc, nitrate of silver, lead, etc., and states that, although the disease is often cured by some of these various means, the case is often protracted and troublesome in the extreme.

Dr. H. relates several well marked cases in which he prescribed the *oxymuriate of mercury*, with decoction of bark, three times daily, with remarkable success.

Dilute citrine ointment, between the eyelids at night, was used, and a drop of vinum opii, in the eye every morning, with occasional purges of jalap and scammony powder.

To young children the dose has generally been the one-sixteenth or one-twelfth of a grain twice a day; to adults, the one-twelfth or one-eighth. The vehicles in common use are tinct. cinchonæ, rhei, and occasionally spirits of wine. The medicine has been directed to be given one hour after meals. The only unpleasant effects from its use have been sickness of stomach or griping; by stopping the medicine for a day or two in both instances, and the administration of a little castor oil in the second, these effects have speedily ceased.

Part ii., p. 104.

Solution of Common Salt as an Eye Lotion in Ophthalmia.—Dr. Hays strongly recommends a saturated solution of common salt as a lotion in ophthalmia. He thinks that in many cases of chronic granular ophthalmia, it has contributed more to the cure than any other application. In some conditions of chronic granular ophthalmia, as where the eye is irritable, with injection of the conjunctiva of the ball, and lachrymation, he knows of no remedy which affords such prompt and marked relief.

Part iii., p. 109.

Leaves of the Walnut in Scrofulous Ophthalmia.—Four cases of scrofulous ophthalmia were treated with walnut leaves; in addition to the infusion and sirup, the following collyrium was employed:

Decoction of walnut, 8 ounces; extract of belladonna, 1 scruple; landanum, 1 scruple.

The four cases were speedily cured.

Part iv., p. 40.

Uses of some of the Combinations of Iodine.—The following mixture was found useful in serofulous ophthalmia:

R Aquæ destillat., eight ounces; liq. hydriodat. arsen. et hydr., eighty drops; tinct. ginger., half an ounce. M. Dose—One ounce every three hours.

In this affection we may probably also find advantage in the use of the *sirup of proto-iodide of iron*, in the proportion of four grains of the proto-iodide to the ounce of sirup; of this about ten drops may be given three times a day to a child four years old.

Part vi., p. 64.

Cresasote in Diseases of the Cornea and Conjunctiva.—Dr. Hildreth, of Ohio, very strongly recommends the use of cresasote mixed up with the strong mercurial ointment, about fifteen drops of the former to half an ounce of the latter, in cases of serofulous ophthalmia combined with opacity of the cornea. He orders a small quantity to be introduced morning and evening, under the upper eyelid, and by that means it is rubbed over the whole cornea. This treatment was found to clear a cornea which was nearly white, much better than nitrate of silver, and to be in every respect a better application than this substance, and it is especially useful when combined with the usual constitutional treatment. It should be applied to the eye, of such a strength that the burning or smarting pain from it shall not continue more than five minutes after its introduction. If too strong, it must be diluted with fresh lard perfectly pure, or with simple cerate. In more chronic cases the application may be made stronger if necessary.

Part vii., p. 151.

Strumous Ophthalmia—Malambo or Matias Bark.—Mr. Ure says:

In serofulous ophthalmia, after removing feculent accumulations from the bowels, I have known an infusion, made with two drachms of the bark to a pint of water, cause a speedy and complete removal of the inflammation and morbid sensibility of the eyes. The dose of the infusion just mentioned is from one to two ounces, repeated twice or thrice in the course of the day. It may, in some instances, be advantageously combined with salts of iron, or of mercury, with both of which it is compatible. The addition of a little sirup of orange-peel and compound tincture of cardamon forms a draught by no means disagreeable.

Part viii., p. 80.

Cod-Liver Oil Externally in Serofulous Ophthalmia.—M. Brefeld treats of the employment of cod-liver oil in topical applications, in the treatment of some serofulous diseases; he praises very highly the following ointment for the cure of serofulous ulcers, which follow inflammation and suppuration of the lymphatic glands:

R Cod-liver oil, 16 parts; yolk of egg or lard, 12 parts; liquid subacetate of lead, 8 parts; to be mixed together and made into a homogeneous ointment. Pledgets of lint are to be smeared with this, and applied to the ulcerations.

In the case of serofulous ophthalmia, especially where there is inflammation of the eyelid with photophobia, M. Brefeld recommends that the

free edges of the eyelids should be anointed with the pure cod-liver oil. M. Cunier has frequently had recourse to the external use of cod-liver oil in scrofulous ophthalmia, accompanied with great intolerance of light, with a profuse discharge of tears, and with swelling of the eyelids; he combines it in this case with the alcoholic extract of belladonna, of which he prescribes one part to two of the oil. Introduced between the eyelids by means of a pencil properly charged with it, the cod-liver oil acts beneficially in scrofulous ulcerations of the cornea, and hastens in a remarkable manner the absorption of opacities of that membrane. In the intercalary ulcerations, this oil is also very useful; M. Cunier employs it in such cases, in the form of the following ointment:

R Oxid. hydrarg. rub. gr. iv., ol. jecor. aselli ʒj., cerati Edin. (Cérat d'Edimbourg) ʒij.

This ointment is very useful in opacities of the cornea, following vascular pannus, in cellular pannus, atonic ulcerations, etc. *Part xvi., p. 233.*

Strumous Ophthalmia.—In a series of reports of ophthalmic cases occurring at Guy's Hospital, Mr. France relates that of a woman with strumous ophthalmia, the exciting cause of which had been suppression of the catamenia from exposure to cold. There was opacity of both cornea, and intense photophobia, which failed to yield to the usual treatment of leeching, counter-irritation, alterative mercurials, purgatives and tonics. Belladonna collyrium was used with better effect; and the intolerance of light and other symptoms, were finally removed by the free application of nitrate of silver to the skin of the upper eyelids. *Part xvi., p. 230.*

Etherization in Photophobia.—For the intolerance of light let the patient inhale ether vapor. Ether inhalation will not cure, though it relieves, the intolerance of light; but may be used in children, to facilitate examination of the eye, or the application of nitrate of silver, etc. For very young children pour half a drachm of ether into a basin containing a little lukewarm water, and hold it under the child's face for a few seconds, a handkerchief or towel being thrown over the head to confine the vapor. *Part xvi., p. 235.*

Treatment of Scrofulous Ophthalmia.—[Dr. Edwards recommends M. Morand's plan of treatment for scrofulous ophthalmia, which consists in the application of a strong solution of nitrate of silver to the nasal mucous membrane; there being generally a swollen and inflammatory state of this membrane in conjunction with the ophthalmia.]

The caustic which M. Morand employed was the nitrate of silver, either in substance, or in solution, or ointment; it was applied for the first week night and morning; after this every day, and latterly every second or third day. He particularly advises that, after cauterization, a deep inspiration should be taken, so that the effects should be as extensive as possible. *Part xvii., p. 202.*

Ophthalmia—Granular.—Acetate of lead is a much more efficient and less painful remedy than nitrate of silver. Apply it uniformly over the surface of the eyelids by means of a fine hair-pencil moistened with water and then dipped in the impalpable powder of acetate of lead. *Part xx., p. 183.*

Strumous Ophthalmia.—Use one part of Scheele's acid with two of dis-

tilled water. It may, in some instances, be used in a more concentrated form. A few drops to be applied to the eye night and morning.

Part xxv., p. 251.

Ophthalmia Tarsi—Ung. Picis.—Dr. Parish believing the obstinate disease *ophthalmia tarsi* to be analogous in its nature to *tinea capitis*, in which *ung. picis* proves of such great service, has resorted to it in the former affection with almost undeviating success. It is carefully rubbed into the roots of the *tarsi* at bed-time, and washed away with castile soap and tepid water in the morning.

Part xxv., p. 251.

Ophthalmia, Strumous.—Smear the external surfaces of both eyelids over with the solid nitrate of silver, previously moistening the lids. Painting the surfaces over with the tincture of iodine has also the same effect, and is perhaps more convenient.

Part xxvii., p. 164.

Remittent, or Strumous Ophthalmia.—The primary cause of this disease, Mr. Hancock believes to be in not adapting the food to the digestive powers of the child; and a second to the close, stifling and unwholesome condition of the air in places where such patients are generally found. Remarking upon the treatment, he says:

The objects to be desired in the treatment of remittent ophthalmia are, the relief of the organs of digestion, and the correction of the secretions, as when these two points are attained, the other symptoms will improve, and the eyes will share in the general change for the better. To achieve these, however, a systematic plan must be adopted, embracing diet, clothing, good nursing, as well as medicine, otherwise but little benefit will result. Abstract remedies, whether for the eyes alone, or the system generally, are of but little use. As far as I have observed, medicine alone will scarcely ever effect a cure; diet alone will rarely do so, although I have seen children, who from improved air, and comfort, and light diet, have lost the intolerance of light without the aid of medicine at all; but these are very rare instances.

Remittent ophthalmia may almost always be traced to a disordered state of the digestive organs—a want of digestive power, an incapacity of properly assimilating the food. The liver becomes sluggish, irregular in its action, and frequently enlarged: the mesenteric glands are enlarged, the secretions vitiated, and the blood consequently becoming impure, the whole system is deranged. The child is pale, weak, and fractious, a torment to itself and every one about it; its appetite is lost, or very capricious, and it is said to be strumous, weak, and delicate: but this condition need not become permanent if the case be judiciously treated; if it be not at the onset erroneously supposed to depend upon cachexia or debility, and treated according to that supposition. The debility is, in most cases, more apparent than real; it is commonly that of irritation or of oppression, rather than of actual weakness. Remove the cause and the debility will usually disappear *pari passu*.

[Mr. Hancock uses no local application in these cases, except where the cornea has given way and the iris protrudes—in which case he touches the part with caustic and applies the extract of belladonna round the eye.]

The treatment should commence with an emetic of tartrate of antimony, given as advised by Mr. McKenzie—viz., in minute doses, at frequent intervals, until free vomiting is induced; and this should be done in all cases, however attenuated or however stout the child may appear. It has fre-

quently been remarked to me, "Surely you would not order that poor child an emetic, it is so attenuated and starved; its stomach requires filling rather than emptying." My reply has always been, "It may be true that the child has not much in its stomach, but what it has is evidently offensive and unwholesome, and consequently the sooner it is ejected the better." What we desire is to relieve the stomach of its offensive contents, and to render its secretions more natural; to correct and restore the secretions of the kidneys, liver, and other glandular structures, and to influence the capillary system generally, so as to improve the condition of the skin and mucous membrane, and to allay the morbid excitement of the nervous system. This is best done by the tartrate of antimony.

I have not found anything like the same amount of good resulting from the sulphate of zinc, from the ipecacuanha powder, or even from the tartrate of antimony itself, when the latter is given in a sufficiently large dose to cause vomiting at once. The following will be found a very convenient form: tartrate of antimony, four grains; sirup, half an ounce; cinnamon water, three ounces; distilled water, eight ounces, as a mixture. For a child under three years of age, two teaspoonfuls of this medicine should be given every ten minutes, until free vomiting is induced; above this age, a tablespoonful may be given at the same intervals. It commonly requires four or five doses to produce the full effect—in some instances more, and in a few less. The treatment should be repeated daily until the intolerance of light begins to subside, which it will mostly do after the first or second day, although in some of the more obstinate cases four or even six days will elapse before the desired result is obtained. When, however, this takes place, the emetics should be discontinued, and a powder of calomel and rhubarb or mercury-with-chalk, with compound scammony powder given every night, or every alternate night, until the tongue becomes cleaner, the abdomen softer and flatter, and the alvine secretions more natural; and as this change takes place, improvement of the eyes commonly accompanies it, if attention be paid to the diet at the same time. When the attack has been complicated with eruption, aperients should be continued until such eruption has disappeared.

When, however, the attack of ophthalmia has been preceded by measles, small-pox, scarlet fever, or any other depressing complaint of that nature, or if the child has been exposed to excessive want, is much attenuated, and covered with a cold, clammy perspiration, the greatest caution should be observed in the administration of calomel, even in small doses, and as an aperient; and in no instance should more than one dose of this medicine be given without the patient being seen, as should pyalism take place, such extensive sloughing of the fauces, gums, and even the lips and cheeks will sometimes ensue, as to destroy the child in a very few days, if not hours. I was sent for, between three and four years ago, to see a child three years of age, who had been laboring under this form of ophthalmia, succeeding measles. The gentleman in attendance had sent six powders, each containing five grains of mercury-with-chalk, directing one to be given thrice daily. The child took four, when profuse salivation set in, with swelling of the tongue, lips, and cheeks. When I saw it on the following morning it was almost in a state of collapse; a gangrenous spot extended from the side of the mouth over the cheek; there was scarcely any pulse to be felt at the wrist, and the surface of the body was cold and clammy. The child died in a very few hours.

In cases accompanied with extreme attenuation and cold clammy state of the skin, it is safer to abstain from calomel altogether, and to substitute the compound scammony powder with taraxacum and henbane.

The same degree of caution is necessary in the use of tonic medicines in this disease as in remittent fever, and, from what I have observed, I believe they never should be given whilst photophobia exists, or in the common and ordinary forms of the complaint. It should be borne in mind that lassitude and weakness are not the causes of remittent ophthalmia any more than they are of remittent fever; they are consequent upon the causes producing the disease, and are just as much effects as the ophthalmia itself. If we overlook this fact, if we endeavor to build the patient up by tonics and strengthening diet, we defeat our object, we increase the lassitude and debility by oppressing the patients by our remedies, since the digestive organs have not the power of assimilating medicines of this description; if, on the other hand, we try to remove the oppression which is bearing the patient down; if we confine our attention to the improvement of the digestive functions and the correction of the secretions, we find that the symptoms of lassitude and weakness gradually disappear, the morbid irritability of the nervous system and intolerance of light subside, and the child improves in health and spirits; after the tongue has become clean, the secretions more natural, and the intolerance of light has been subdued by emetics. In those extreme cases where sloughing of the cornea has set in, or where the complaint is accompanied with profuse perspiration, and the attacks assume the paroxysmal or intermittent character, quinine may be employed with advantage, but even under these circumstances its effects should be cautiously watched, and it is better to combine it with some gentle aperient.

In those cases in which there appears to be a want of the due proportion of red globules in the blood, steel may be given when the urgent symptoms of ophthalmia have subsided, but not before. In exhibiting this medicine, I am guided principally by the appearance of the tongue, gums, and inside of the lips. When the tongue is tremulous, and with the gums and inside of the lips paler than natural, I have found steel useful, but not so when these parts present the opposite character. I do not consider mere pallor of the countenance as any criterion of the utility of this medicine. The preparation which I have found to agree best is the tincture of iron prepared by Mr. Bontell. The remedy upon which I place the greatest reliance to complete the cure is the hydriodate of potass in doses of from half to one or even two grains thrice daily, according to the age of the patient, and in combination with the tincture of iodine, as advised by Lugol.

It should not, however, be employed until after the intolerance of light has yielded to the emetics and alteratives. Where the child is highly nervous and excitable, henbane, in tincture or extract, thrice daily, in doses proportionate to the age of the individual, is very useful, but, like the hydriodate of potass, should always be preceded by emetics and alterative medicines. Like quinine, it requires watching, and we should carefully provide against torpor of the bowels, which will sometimes ensue.

Other cases occur in which the presence of worms in the alimentary canal keeps up the symptoms, which will not yield to the usual treatment. A dose of turpentine and castor oil answers extremely well under such circumstances, and this may be repeated if necessary.

Again, attention should be paid to the state of a child's mouth and teeth. Intractable cases will frequently improve after the abstraction of a decayed tooth, or the lancing the tense inflamed gum over a tooth pushing its way through. In many instances the overcrowding of the teeth is the cause of much suffering, the jaw being too contracted to admit of their due and regular development. This is often very prejudicial to the ophthalmic symptoms, and is only overcome by the abstraction of one or more of the teeth, which, affording sufficient space to the remainder, removes the cause of irritation.

[Mr. Hancock has no faith whatever in any form of counter-irritation, but strenuously urges the regulation of the diet, which should be of the plainest character. He states that severe relapses have returned after a hearty, solid meal.]

Part xxviii., p. 250.

Contin as an Application in Scrofulous Intolerance of Light.—The author employed with great effect the following preparation in the non-inflammatory blepharospasm of scrofulous children: *Contin*, gr. ss.; *olei amygd. dulc.*, ʒj. Mix, to form a thick fluid, with which the lids may be daily pencilled. In eight, or at most fourteen days, this troublesome condition ceases. Hard glandular swellings of the neck bear this remedy better than salves composed of iodine.

Part xxx., p. 184.

Purulent Ophthalmia.—Give mercury at the onset just to touch the gums; when ulceration has set in it must be given more sparingly; the solution of nitrate of silver (eight grains to one ounce) must be applied every two, four, or six hours, according to the intensity of the inflammation, etc. The weak solution of nitrate of silver is far more useful than a strong solution. When the inflammation runs high, leeches may be repeatedly applied as long as the preservation of sight is possible; or you may adopt Tyrell's mode of scarification, though Mr Dixon, of Moorfields Hospital, entirely repudiates these radiating incisions of the conjunctiva. Throughout the course the eyes ought to be continually sluiced with warm poppy fomentations, containing one or two drachms of alum in the pint.

Part xxxii., p. 108.

Granular Conjunctiva.—Dr. Robt. Hamilton and Mr. Benj. Bell, of Edinburgh, recommend very strongly, as a local application to the granular surface, the solution of diacetate of lead; it should not contain any carbonate of lead, which is apt to be deposited from it on exposure to the air. It may be applied not oftener than once in two days by means of a camel-hair brush of moderate size.

Part xxxiii., p. 214.

Purulent Ophthalmia and Strumous Ophthalmia.—In what is so well known as strumous ophthalmia, quinine and iron given internally (more especially the former) are the chief remedies to rely on. In cornetia, iron is, perhaps, more valuable; and where the sclerotic is chiefly involved, cinchona and alkalies, and colchicum. In purulent ophthalmia, the plan recommended by Mr. France, with the exception of mercury, has not been much improved on; the depletory plan is not so good as the careful use of nitrate of silver. The sulphate of alum is an astringent in great favor with Mr. Haynes Walton. Mr. France uses it in decoction of poppies.

Part xxxiii., p. 215.

Purulent Ophthalmia.—The following lotion is almost specific in various forms of purulent ophthalmia and chronic conjunctivitis: *R Cupri sul-*

phatis, gr. ij. ; vini opli, 3j. ; aquæ dest., 3vij. Fiat lotio. It is applied freely with a soft camel-hair brush, three times a day. *Part xxxv., p. 142.*

Ophthalmia—Purulent.—During the acute stage, you may, 1. Depiete locally by leeches. 2. Scarify the inner surface of the lida. 3. Divide the external canthus, or scarify the ocular conjunctiva in radii, if chemosis is high. 4. Apply nitrate of silver drops, the strength varying according to the severity of the symptoms. 5. Foment constantly with decoction of poppies, containing a little alum. 6. After the bowels have been well opened, for which purpose croton oil is the best, as being the most speedy purgative, exhibit mercury, which must be used guardedly if ulceration threaten the cornea. 7. Give quinine when debility prevails. 8. Moderately nutritious diet should be given, and progressively improved. In the convalescent or chronic stage, tonics with varied and mild local astringents and slight counter-irritation must be used to complete the cure. The above is the treatment adopted at Guy's Hospital.

Part xxxvi., p. 201.

Inflammations of the Eye.—Except in catarrhal and purulent inflammation the surgeons of the Moorfields Hospital strongly disapprove of the use of topical stimulants. In catarrhal and purulent inflammations, nitrate of silver drops are used of one grain to the ounce, though in purulent inflammation, especially in infants, an alum lotion of eight grains to the ounce answers better. To remove lime from the eye a vinegar lotion is the most effectual ; it should be very freely used. *Part xxxvii., p. 200.*

Strumous Ophthalmia.—When the intolerance of light is great, the bowels irritable, and the child very restless, a full opiate at night, with bark in the day, is often very quickly effectual. Battley's liquor cinchona is the best preparation for children. In cases of pustulo-strumous ophthalmia in children, chlorate of potash, as an alterative saline, is very useful.

Part xxxvii., p. 200.

Purulent Ophthalmia of Children.—The use of nitrate of silver, though undoubtedly quite sufficient to cure the disease, is attended with the disadvantage of causing great pain—so much so, that the mother, from mistaken tenderness, neglects to apply it. The use of chloride of zinc dissolved in glycerine, five grains to half an ounce, and applied about three times a day with a camel-hair brush, is not open to this disadvantage. It may be dissolved by trituration in a glass mortar. Frequent ablutions should be used ; and pure glycerine may be applied frequently to dilute the purulent discharge.

Part xxxviii., p. 188.

Ophthalmia Tarsi.—Wash the edges of the eyelids, carefully removing any adherent matter from the roots of the eyelashes and Meibomian apertures. Carefully evert the edge of each eyelid, and apply tinct. iodine by the aid of a fine camel-hair brush ; and in the intervening periods frequently apply glycerine in the same way. Quinine and sulphuric acid should be administered internally. By this treatment many cases ordinarily deemed incurable may be cured.

Part xxxviii., p. 188.

VENEREAL DISEASE OF THE EYE.

Chloride of Lime in Diseases attended with Contagious Discharge.—*Dr. R. Hall* uses the solution as follows :

The eyelids are slowly and gently separated until the cornea can be

seen, when that is manageable, and all secretion is wiped away with a fine soft sponge. A large bushy camel hair pencil, charged with the strong solution, is then insinuated beneath the upper eyelid and swept round the front of the eye; the pencil is again charged with the solution and applied to the everted lower lid. Unless plenty of fluid be thus applied, the application will be equally painful but less effectual. There is considerable pain, of a smarting, burning character, for half an hour or longer, and the already swollen eyelids become more tumid and prominent. This tumefaction is œdematous in character, the skin losing, in some measure, its peculiar redness, and becoming more transparent. In a few hours a serous discharge oozes out from between the eyelids, and the swelling partially subsides. This is followed by secretions of matter, but after two or three applications of the chloride, in perceptibly diminished quantity, the discharge gradually loses its characteristic yellow color, and is seen in flakes on opening the eyelids. After three or more applications, the eyelids no longer swell as they did after the first, and the pain is much less. The eyes are kept clean with warm water, matter never being suffered to collect beneath the upper lid; a little spermaceti ointment is smeared on the edges of the eyelids, and the strong solution is applied once in every twenty-four hours, until the secretion ceases to be in the least degree puriform. No other treatment whatever is necessary. *Part xi., p. 186.*

Syphilitic Inflammation of the Eye.—In the treatment of syphilitic inflammation of the eye, mercury is the grand remedy; it not only acts as a specific in eradicating the disease of which the iritis, etc, is only a symptom, but as in ordinary ophthalmia, it prevents those morbid changes of structure which would injure or destroy the function of the organ. Fifteen years ago, Mr. Carmichael, of Dublin, called the attention of the profession to the use of turpentine in these cases, but, from the well-known effects of mercury in syphilitic diseases, and its consequent peculiar adaptation to cases of this kind, turpentine has scarcely had the trial it ought.

Mr. Carmichael's formula: *R.* Olei terebinth. rectificat. ℥j. ; vitelli unius ovi simul, et adde gradatim, emulsionis amygd. ℥iv. ; sir. cort. aurant. ℥ij. ; apt. lav. c. ℥ij. ; ol. cinnam. gtt. tres vel quatuor. Misce, sumat cochlearia larga duo ter in die. If the inflammation run high, cup or leech the temple. This remedy alone is frequently successful, but in obstinate cases, mercury is the sheet anchor. *Part xiv., p. 261.*

Ophthalmia—Gonorrhœal.—Apply solution of nitrate of silver, 3j. to ℥j. But if the patient is steady, use the solid nitrate; carry the pencil lightly over the lower, and then the upper lid, observing not to touch the cornea, and immediately inject water, to remove uncombined caustic. Repeat the cauterization, if required, in five or six hours. Excise or scarify chemosis *after* the caustic has been applied.

Scrofulous.—Give sulphate of quinine, combined with alterative doses of calomel. *Part xv., p. 266.*

Treatment of Gonorrhœal Ophthalmia.—M. Ricord's treatment is as follows: The patient is to be kept quiet; the head should be raised, and the eyes completely secured from light; the diet very low. The first thing to be done is to rub the nitrate of silver over the affected surfaces, so as to produce a white film. After cauterization, the eyes should be

sedulously washed with warm water. The patient should be watched after the first use of the nitrate; it will then be perceived that the secretion is momentarily suspended by it, but when the crust formed by the caustic falls off, the pus reappears, but is lighter in color, and sero-sanguineous. So long as little white streaks, the result of cauterization, remain visible, and so long as the secretion is not again purulent, it may be judged that the influence of the nitrate continues, but if the secretion has become again purulent, the cauterization may be repeated; indeed, it can be safely used three times a day. The eye must be repeatedly cleansed during the day, and poppy-head fomentations be constantly applied; poultices are to be eschewed, as they favor œdema. Mercurial frictions are injurious at this stage, not so at a later period.

If there be chemosis, this state should, if possible, be removed, while it is merely the result of œdema; when it has become phlegmonous, the conjunctiva is so distended as to be with difficulty seized with the forceps. The excision should be preceded by cauterization, and is to be made with curved scissors and flat forceps. When chemosis has reached the phlegmonous state, it cannot be excised, and is to be scarified. If there be much febrile action, blood is to be taken from the arm. Leeches may be placed in the course of the jugular vein, or behind the ears. Mustard pedicula are to be avoided, as the essential oil is apt to irritate the eyes. Blisters on the nape are advisable on the decline of the disease. *Part xvii., p. 198.*

Treatment of Purulent Ophthalmia of Infants by Douches.—M. Chassaignac has employed irrigation of the eye for the treatment of the ophthalmia of young infants with the greatest success; so that while formerly blindness at the Foundling Hospital was constantly occurring from this cause, it is now seldom so produced there. The child is laid on a table, and water allowed to flow from a small tap through a tube over the surface of the eye during from 5 to 15 minutes several times a day. M. Chassaignac has discovered that in this disease a pseudo-membrane is frequently produced, the removal of which much expedites the treatment. The mortality of children suffering from disease of the eyes during the last ten years, was 1 in 3; while this plan has been adopted, it has been but 1 in 8. In the course of investigation, this means was found applicable to several other inflammatory conditions of the eye, and also especially for the removal of opacities of the cornea, which resist ordinary means. *Part xvii., p. 198.*

Gonorrhœal Ophthalmia.—Make early free radiating incisions of the sclerotic portion of the conjunctiva, as when in a state of intense chemosis this portion is said to strangle the vessels passing to the cornea, and thereby induce sudden sloughing and mortification.

Occurring in children, apply a solution of chloride of zinc of the strength of one grain to the ounce. *Part xxiii., p. 312.*

Purulent Ophthalmia in Infants.—If the inflammation is excessive, the conjunctiva may be scarified, and fomentations employed; but these are exceptional cases. The bowels may be opened in the first instance by the grey powder with rhubarb, and afterward by castor oil. Then the eye must be thoroughly cleansed from all purulent secretion by ablution, or by means of a syringe (a sponge should not be used for any other purpose, on account of the contagious character of the disease). The agglu-

tionation of the palpebræ may be prevented by the application of some mild unirritating ointment smeared over the lids, as by the ung. cetacei, or ung. zinci. Then a lotion, containing a grain or a grain and a half of nitrate of silver to the ounce, may be used, two or three drops being introduced upon the conjunctiva three times daily, taking care to cleanse the eye first. When the complaint is subdued, and lest the eye should become discolored, we may employ a lotion composed of sulphate of zinc two grains, wine of opium two drachms, rose water six drachms. If this does not answer, an alum wash may be substituted. If an ulcer should form, and an opening be effected into the interior chamber, a point of nitrate of silver should be introduced, and if the iris protrudes, belladonna should be applied.

After all morbid discharge has ceased, the case has become chronic, and any ulcer which may have existed has closed, or shows a disposition to do so, the black wash, composed of seven grains of calomel to an ounce of lime water, is extremely useful, promoting cicatrization, and tending to disperse the hazy opacity which always surrounds a cicatrix. Some degree of opacity may result from the inflammation to which the cornea has been subjected, independently of ulceration; and in such cases likewise, in their chronic stage, the black wash is beneficial.

If destruction of the entire cornea has taken place, it can be of no avail in restoring vision to apply nitrate of silver to the part, or belladonna to the brow; the treatment then becomes merely palliative, and the only remaining object is to relieve the conjunctival inflammation and control the deformity which ensues.

Part xxviii., p. 253.

PTOSIS.

Operation.—[Mr. Curling communicates the case of a gentleman whose eyelids "hung loose and motionless over both eyes" from paralysis. Finding the patient to have still complete power over the occipito-frontalis muscle, it struck him that by uniting the superior palpebra to that muscle, the patient might have some power over the lid. He says:]

I performed the following operation: The integuments between the eyebrow and lid, which were very abundant, were raised with the thumb and forefinger of my left hand, and those of an assistant, to such an extent that it was just possible for the patient to close the lids, when, by a single stroke of the scissors, the skin included between our fingers was removed, leaving an elliptical wound, which extended from a little below the eyebrow to about one-third of an inch from the margin of the lid and the whole width of the palpebra. Scarcely any bleeding ensued. The edges of the wound were approximated and retained by two sutures, and the part united by the first intention, and perfectly healed in eight days. No ectropium or deformity resulted. The patient, afterward, could completely close the lids, and, as was anticipated, could raise the superior one, and uncover the eye, simply by the action of the occipito-frontalis muscle.

Part iii., p. 89.

Hereditary Ptosis.—In the *Gazette Médicale* we have an extract from an Italian medical journal giving an account of a very extraordinary case of hereditary ptosis. The patient presented himself to M. Alessi, with chronic ophthalmia of the right side, when he observed that the upper eyelid of the left side was so relaxed as to cover about a third of the pupil.

On questioning the patient, it was found that this affection was hereditary, his father having suffered from it, as well as his son and grandson; and to increase the singularity of the case, the deformity changed side with each generation. M. Alessi visited and examined the man's son and grandson, and found them affected as had been described. He attributes it, not to atony of the elevator muscle, or paralysis of the 7th pair, etc., but to a flattening of the supra ciliary ridge, especially toward the outer angle: so that the integuments, not being supported on the usual prominence, fall over the eye-ball.

Part iii., p. 168.

Ptosis.—After operations for ptosis, unite the edges of the wound together by means of collodion.

Part xix., p. 318.

Use of Tincture of Iodine.—Mr. Carr had directed a young man with ptosis of the right eyelid, apparently depending upon an atrophic condition of the levator muscle, to come to his house, for the application of nitric acid to the lid. When the man came, finding he had no nitric acid at the time, he applied some tincture of iodine to the lid simply as a placebo, directing him to come again next day. As this single application had caused slight contraction of the lid, Mr. Carr determined to continue application, which he did, and with the result of a perfect cure in a month.

Part xxxviii., p. 193.

STRABISMUS.

Cure of Slighter Degrees of, without Division of the Muscles.—Dr. Dieffenbach states that he has cured the slighter degrees of strabismus by snipping off a piece of the conjunctiva with the subjacent cellular tissue, near the insertion of the rectus muscle on the side from which the eye diverges. He states that a larger piece of the conjunctiva must be removed when the eye is turned outward than when it is turned inward, because, when the eye is turned inward, it is generally occasioned by the greater power of the internal rectus; but when the eye is turned outward there is generally paralysis, or at least, a weak state of the rectus internus.

Part iv., p. 105.

Cure of Squinting by the Use of Prismatic Spectacles.—This condition has been recently cured by the use of prismatic spectacles. Supposing the squint to be internal, for example, the prismatic glass is placed to the outer side of the eye, so that at length by the constant straining efforts of the eye, to obtain an accurate view, the eyeball is gradually drawn more into its natural position. As this natural state is more and more perfected, prisms should be used of gradually diminishing power.

Part xxviii., p. 255.

Squinting.—In this operation take care to know, and to tell the patient beforehand, whether one or two operations will be necessary. "If you find the vision of both eyes good, but the degree of convergence considerable, in all probability two operations will be necessary." If with this convergence you have unequal visual power, one operation will generally be sufficient.

Part xxxi., p. 196.

Strabismus.—This is rather relative than positive, therefore, before you operate, you must test the relative power of vision in the two eyes, and select that one for operation which is habitually inverted.

Operation for.—Under the influence of chloroform, the muscle must be

divided sub-conjunctivally, in the following manner: Fix the eyelids open with a spring speculum, seize the conjunctiva and make a small opening through it and the sub-conjunctival fascia with a pair of blunt-pointed scissors, at the lower border of the internal rectus, so as clearly to expose the sclerotic; then pass the strabismus blunt hook through the opening beneath the muscle, and divide the tendon by a succession of small cuts with the scissors between the hook and the insertion of the muscle into the sclerotic. If the tendon is broad you may make a counter opening at the upper border of the muscle, and divide in the same manner. The advantages of this plan are great; there is no inflammation, suppuration, or granulations; the caruncle does not shrink into a deep fossa as is so common, and eversion never occurs.

Eversion after the Operation for.—Place the patient under chloroform, and expose the globe by means of the wire speculum, and with a pair of scissors carefully dissect off the parts covering the sclerotic on the inner part of the globe, commencing about two lines from the inner border of the cornea, and extending upward and downward, and then inward. You must now divide the external rectus, then draw the flap which has been raised firmly forward, and pass a very fine silk suture through it near the inner cornea; it must then be passed through the conjunctiva left near the cornea, by first separating it from the sclerotic toward the cornea, and passing the needle twice through it, so that it may not tear loose. Two or three sutures may be passed through in this way, but before you draw them tightly, cut away the superfluous part of the flap, then tie them. The immediate effect of this proceeding is some inversion, but the parts unite to the globe in their new position, and the eye becomes situated in the centre.

Part xxxii., p. 208.

Strabismus—Sub-conjunctival Operation.—This was first practised by M. Guérin, in France. In 1843 it was repeated by Mr. Charles Brooke; it afterward was neglected and condemned, until recently it has been again brought into notice. The operation may be thus performed: The eyelids must be kept apart with the spring speculum; draw the eye from its unnatural position, make a small incision with a probe-pointed pair of scissors down to the sclerotic, three or four lines internal to the cornea, and horizontal with its lower border; through this aperture pass the knife beneath the muscle, turn its back to the sclerotic, and, with a gentle sawing motion, the muscle will be heard to give way. A particular knife will be required, with the blade bent at an angle with the handle, to facilitate its introduction.

Which Eye to Operate upon.—In alternating squint, when both eyes appear to be affected, the comparative visual power of the two eyes is the only test that can be depended upon. We may lay it down as a law, the less the difference in the visual power of the two eyes, the greater the tendency of the squint to alternate, and, conversely, the greater the difference the less the tendency to shift. The rule of practice must, therefore, be to select that eye for operation, the visual power of which is inferior to the other; but when the power of the two eyes is alike, it is immaterial which you choose.

Part xxxiv., p. 194.

Strabismus.—In performing the sub-conjunctival operation for the relief of this affection, two very important points are, to make the external incision small, and though vertical, completely below the lower margin of

Then direct the patient to uncover the left. Now if the eye has not been closed, is normal, it will keep its central position; if it is turned inward; but if it be deformed it will turn outward and will become straight. The experiment should be reversed.

Part

Divergent Strabismus.—Cases of divergent squint are more difficult to remedy than those of convergence. In obstinate cases where division of the external rectus fails to effect a cure, I have adopted the practice of bringing forward the attachment of the external rectus. The patient being under chloroform, with scissors the conjunctiva of the inner side of the globe is divided at a point of an inch distant from the corneal margin, for the length of an inch. Continue the dissection inward, dividing the external rectus, and the adjacent fascia and cellular tissue. A cone thus separated, and through its entire thickness, half an inch from the margin, sutures are now placed. Then cut away a curved free margin, a third of an inch wide, and tie the sutures; four sutures will suffice. This operation is not nearly so difficult as it might appear.

Part

Strabismus.—The method of operating now followed is as follows: Make a horizontal incision in the conjunctiva, corresponding to the inferior border of the tendon of the muscle. Near the cornea as possible, pass a blunt hook under it, and with the inferior blade of a blunt-pointed scissors as far as required, divide the muscle by a succession of small cuts; the wound may be closed with two silk ligatures. The disadvantage of this operation, as an improvement on the older methods, is, that a large opening is made to the play of the scissors; this may be avoided by the use of a curved hook, the limb of which must be short and the curve a right angle; the muscle may be drawn down to the opening, and a knife groove divides it. Thus, a very small wound is required to effect the first intention. It is worth remembering that the

MISCELLANEOUS.

Surgical Use of the Magnet.—In the workshops of Fairbairne (in Belgium) there has been recently put up an artificial magnet of great power, at the level of the eye. Every instant one may see a turner, or an adjuster, or some other kind of workman, who has had a particle of iron driven into his eye, running to the magnet, which draws it out as soon as the eyelids are separated and the eye held near its pole. One may conceive from this how a magnet might be made of sufficient power to draw a piece of iron even from the flesh or from the bones.

Part vi., p. 155.

The Eye Fountain.—This will be found of great use by persons afflicted with weak or inflamed eyes; also after a long study. It is in shape like a small vase, attached to which is a small air-pump, the use of which is to propel, through a very fine jet, a continuous stream of water or lotion against the eyes.

Part xxiv., p. 251.

Weak Eyes—Use of Gelatine Paper.—Mr. Dobell has called the attention of the Royal Society to gelatine paper as a medium for coloring light, likely to be useful in many employments, and in cases of weak sight. This kind of paper, which was first invented at Rouen, in 1829, is now produced in great perfection; it is highly transparent, and in sheets measuring sixteen inches by twenty-two, but can be made, if required, of the dimensions of the largest plate glass. These sheets, moistened with a solution of gelatine, may be stuck on the panes of a window, and thus change the light admitted to any required color. A green light, falling on the white silk made up by dressmakers, deprives it of all its painful glare; and in the same way, yellow silk is made to appear green by a blue light, as has been proved by actual experiment, and it is attended with the happiest results. Jewellers who have tried the green paper, say, that when once accustomed to working in a colored light, they find it greatly relieves their eyes. In reading, too, a sheet of the green paper laid on the page preserves weak eyes from being injured by the strong contrast of black and white, and enables many to read with comfort who have been hitherto obliged by too susceptible vision to abstain from books. Other applications of gelatine paper naturally suggest themselves; it may be used as screens and shades for many purposes; the glasses of spectacles may be coated with it; gardeners may use it in their conservatories; and the yellow will probably be taken into their service by photographers. By the addition of a small quantity of acetate of alumina during the process of manufacture, the gelatine paper becomes waterproof, just as linen or woollen cloth is rendered waterproof by the same chemical substance.

Part xxxi., p. 235.

Belladonna—Uses of.—In intolerance of light, a lotion made of half a drachm of the extract dissolved in eight ounces of water, and applied warm, will relieve a large proportion of cases. To dilate the pupil, for the purpose of exploring the interior of the eye, a drop of the solution of the sulphate of atropia, applied to the conjunctiva, will produce the effect in about ten minutes. At the commencement of serofulous ophthalmia, one or two grains of the powdered leaves with two or three of the hydrarg. o. cretâ have generally a good effect. The tincture of belladonna, when

given in ten-drop doses to adults, relieves neuralgic pains about the eye, and even the pain attendant on internal ophthalmia, in the most astonishing manner. *Part xxxv., p. 135.*

Sulphate of Atropia.—This salt is preferable to the pure alkaloid for therapeutical purposes, but the absorption of the solution, if strong (such as five grammes to the ounce of distilled water), must be guarded against. Its application is peculiarly soothing in painful inflammatory states of the eye, the intolerance of light and abundant lachrymation being much relieved.

* * * * *

Belladonna.—When used to dilate the pupil, the extract gets hard and contracts, producing a disagreeable tightness; this may be avoided by mixing it with a little glycerine. *Part xxxvi., p. 210.*

Atropine Drops.—The formula for the atropine drops in use at the Royal Ophthalmic Hospital is two grains of the sulphate of atropine to an ounce of distilled water. This solution is mainly employed for dilating the pupil, in order to allow of better examination of the state of the eye, and also prior to needle operations. At this hospital the pupil is never dilated before the performance of extractions. Dilatation of the pupil to its utmost possible extent is desirable before inspection with the ophthalmoscope. Attention to this hint will prevent disappointment, and the loss of much time to novices with the instrument. In the course of iritis, when it is deemed desirable to employ belladonna, the extract itself, rubbed up with warm water, and used as a fomentation, is preferable to atropine. It should be used as warm as can be borne.

Part xxxvii., p. 188.

Discoloration of Conjunctiva from Nitrate of Silver.—In those cases where the conjunctiva has become discolored from the prolonged use of nitrate of silver, try a solution of hyposulphite of soda (gr. x. to ℥j.); or solution of iodide of potassium (gr. viij. ad ℥j.) It should be applied by means of an eye-glass, so as to insure a prolonged contact with the conjunctiva, and should be continued for many months.

Part xxxvii., p. 311.

To Produce Dilatation.—Take atropine, five grains; lard, three drachms; otto of roses, one drop. Make into an ointment. A piece the size of a pea to be applied three times a day, until dilatation of the pupil is effected.

Part xv., p. 61.

To Relieve Extreme Dilatation.—(*Mydriasis.*)—To relieve extreme dilatation of the pupil from belladonna, let a pinch or two of powdered ergot be taken like snuff.

Part xviii., p. 250.

Shortsightedness.—Induce a contraction of the iris by means of the extract of ginger, rubbing it over the whole forehead for five or ten minutes with the view of acting upon the fifth pair of nerves. The effect of this contraction is permanent.

Part xxiii., p. 218.

Ophthalmoscope—Improved.—This instrument enables us to throw a quantity of light into the eye in such a way that the observer, out intercepting the rays which enter, may receive directly into his

own eye those reflected from the retina of the explored organ. The instrument is a small round concave mirror, about two inches in diameter, with a focal distance of four and a half inches; the silvered surface being accurately adapted to a plate of blackened copper. The centre is perforated by a small hole for the observer to look through. It is obvious that the observer, by having a light at the back of his patient (in a darkened room), can reflect it from his mirror into the eye, and by means of his little peep-hole he can distinctly observe the interior of the organ, the pupil being previously dilated by belladonna. This little instrument may be held in one hand, but Mr. Dixon adapts it to a spectacle frame so as to have both hands at liberty.

Part xxx., p. 170.

Cold as an Anæsthetic in Operations on the Eye.—Recommended by means of pounded ice put into a bladder, mixed with salt, and placed over the eye, temple, cheek, and brow, and kept there for about twenty minutes.

Part xxx., p. 184.

Use of Atropia.—A good way of applying this is the following, as it saves much time: Make a solution of gutta serena in chloroform. In this dissolve the required quantity of atropia, and paint the eyelid over with it by means of a brush. In a few minutes the effect will be seen on the pupil.

Part xxxii., p. 315.

Extirpation of the Eye.—Divide the conjunctiva as close as possible round the margin of the cornea, then cut through the external rectus muscle close to the sclerotic, then the superior and inferior recti, and the obliqui; then draw the globe forward and divide the optic nerve, turn the globe out of the orbit, and complete the operation by dividing the internal rectus. It is readily done, there is no hemorrhage, no local or constitutional disturbance, and the cure is speedy and complete. It may be performed, 1st, where there is extensive staphyloma of the globe, and in such cases it is a far milder operation than that of opening the globe. 2d, where a foreign body is suspected within the globe. 3d, where there is extensive adhesion between the globe and the lids. 4th, where there is frequently repeated acute inflammation, preventing the use of the other eye. 5th, where there is deep-seated disease of the globe, threatening the loss of the other eye.

Part xxxiii., p. 217.

Sympathetic Inflammation of the Eyeball.—When an eye hitherto sound has become weak and inflamed through sympathy with the one which had been previously impaired, it can be rescued from destruction in no other way than by getting rid speedily and conclusively of the abiding source of irritation. This can be effected in two ways: by cutting off the fore part of the eye, and evacuating the humors or by removing the inflamed eyeball completely, after division of all its muscles.

Part xxxviii., p. 181.

Excision of the Eyeball.—The following is briefly Mr. Dixon's method of performing this operation: "The wire speculum having been introduced, the conjunctiva, elevated by dissecting forceps, is divided all around at the margin of the cornea with scissors curved on the flat and slightly rounded at their points. The tendon of external rectus and the adjacent areolar tissue are next seized in the forceps and snipped through. An assistant now fixes the globe and draws it forcibly inward by holding in

forceps the insertion of the just divided muscle, and the superior rectus, the oblique and the inferior rectus are in order snipped through. The globe now starts forward, and the optic nerve having been easily reached and cut through, it is turned hind part before, and a few more touches suffice to divide the last remaining muscle, and to complete the operation."

Part xxxviii., p. 184.

Chloride of Zinc Collyrium.—At the Royal Ophthalmic Hospital (Moorfields) Mr. Critchett has some time been employing a lotion of chloride of zinc as an eyewater in cases of vascular and thickened conjunctiva. He holds that the disease is a sort of "gleet of the eye," and analogous in nature to gleet of the urethra. The strength used is one grain to the ounce.

Part xxxiii., p. 224.

Lime in the Eye.—Apply, drop by drop, under the eyelids, a strong solution of angar. It can always be obtained, and completely prevents the caustic action of the lime.

Part xxxviii., p. 100.

Ophthalmoscope.—This instrument has now the following uses. *a.* It will enable the merest tyro to pronounce positively as to the existence or non-existence of cataract—a feat which, in certain peculiar cases, used formerly to baffle the best-trained observers. *b.* It makes easily evident the very first beginnings of cataract at a period long before the opacity is discoverable by the unassisted eye. *c.* It reveals in cases of true glaucoma the existence of a cup-like depression of the optic entrance, a sign of the greatest importance as to showing a morbid degree of intraocular pressure, and indicating the necessity for iridectomy. *d.* It affords a clear demonstration of the physical cause of muscae, and sweeps aside the old notions about varicose vessels in the choroid, etc. *e.* In affording indisputable proof of the dependence of many cases of what used to be classed as amaurosis or retinal apoplexy, or punctate extravasations of blood in the retina (a sort of purpura of the retina), it saves the surgeon from the risk of the serious error of prescribing mercurials and antiphlogistics to patients already suffering severely from humoral dyscrasia. *f.* In another class of cases it exhibits to the observer, in the clearest manner, the existence of limited effusions of lymph, in the deep structures of the eye, such effusions requiring for their removal immediate resort to mercurial treatment. *g.* In yet other cases, in which, with amaurotic symptoms of the most serious kind, the surgeon might have felt bound to attempt something even without a certain knowledge of their pathology, it will show the retina already detached and disorganized, and demonstrate the uselessness of treatment.

Part xxxix., p. 237.

Night Blindness in Scurvy.—Night blindness in cases of scurvy, on board ship or elsewhere, is more frequent than is generally supposed. The affection appears simultaneously with scurvy, and disappears suddenly whenever a better diet is obtained, as fruit, fresh meat, and vegetables. It probably depends on an altered state of the retina, the scorbutic blood not nourishing, and blunting the nervous pulp.

Part xl., p. 171.

Weak Vision in the Aged.—In the case of aged persons whose sight is becoming enfeebled, and requires the aid of convex glasses, great advantage is derived, supposing no nervous lesion exists, from painting every

evening the eyelids and brow with landanum, and allowing this to remain all night.

Part xl., p. 177.



EYELIDS.

Erectile Tumors of the Eyelids.—Treatment.—A little girl, fourteen years of age, had presented, since her birth, on the upper eyelid, an erectile tumor about the size of a grain of coffee. The tumor was of a livid red color, increased daily, and was excessively tense when the child cried. M. Carron du Villards inoculated the tumor and its circumference with vaccine virus, traversing it with a thread impregnated with the vaccine matter. On the fifth day, the symptoms of inoculation manifested themselves. Five pustules appeared around the tumor, which itself became inflamed. On the tenth day it was covered by a black crust, which came off on the twentieth, leaving a healthy, rosy surface underneath. All traces of the erectile tumor had disappeared.

A child, nine years of age, had borne since its infancy, an erectile tumor in the external angle of the eye. The tumor had never increased in size until the child was attacked with scarlatina. Its increase from that time was so rapid as to alarm the parents, who applied to M. Carron du Villards. Three entomological pins were fixed in the tumor, and their extremities having been bound together with a little silver wire, were exposed to the flame of a wax candle. The tumor became swollen, cracked, and then sank. On withdrawing the pins they brought away a portion of its parenchyma. Eight days afterward the child was cured.

A young woman of Versailles had an erectile tumor, of the size of a pea, on the superior eyelid. After an attack of scarlatina, it became endowed with increased vitality, and appeared ready to burst every time she coughed. In six weeks it acquired the size of an olive. M. Carron du Villards having been then consulted by her family, determined to operate by the coagulating method. The tumor was injected, by means of Anel's syringe, with a styptic solution. It became black, and then faded. On the fourth day it was surrounded by an inflammatory circle, and covered by small phlyctenæ. The fifth day a portion of it separated, and the rest dried up. On the eighth day the entire crust fell off, leaving underneath a rosy, new skin, similar to that of a cicatrised blister, without loss of substance or deformity.

Part ix., p. 181.

Palpebral Tumors.—Do not touch until they are the size of a pea, and present a yellow elevation internally; then, everting the eyelid, open from the conjunctival side with a small sharp scalpel; press out the contents with a small spatula, and touch the sac with a probe coated with lunar caustic, and smear with oil afterward, to prevent irritation. If there is a fungous growth, remove with curved scissors.

Part xv., p. 263.

Warty Excrescences of the Eyelids.—[Mr. Estlin considers these tumors to be diseased sebaceous glands, and regards the disease as infectious, though the common cuticular warts are not so. These "soft warts"

cannot be got rid of by lunar caustic—nor even by potassa fusa, unless it is very freely applied. Mr. Estlin says:]

The most expeditious and least painful method is to slit them quite through with a lancet or cataract knife, passed perpendicularly to their bases, and then forcibly to squeeze the separated halves, with the thumb-nails placed on the sound skin, till the contents are fully turned out of their lodgment; the force required to do this will sometimes bruise the skin a little, but in two days the part is usually healed. The tumors, when thus removed, are found to be lobulated, appearing like miniature brains. If they resist considerable pressure, the loosened portion may be taken hold of with forceps, and thus the whole extracted. This practice may be employed when the tumors have begun to inflame or suppurate. Smaller ones usually disappear without treatment; their chief annoyance arises from the inflammation they occasion in the eye and lids. Children are the chief subjects of the affection. *Part xv., p. 265.*

Tarsal Tumors.—Use a pair of forceps with one blade ending in a ring, and having a screw to fasten the blades together. Slip the ring portion beneath the lid so as to encircle the tumor, screw the blades together with the necessary degree of firmness, and evert the lid. Open the sac freely, and turn out the contents with a small silver spatula, or a Davielle's scoop; then apply a fine probe coated with nitrate of silver over the anterior, smear the surface with a little oil, restore the portion of the lid, and take off the forceps. *Part xvii., p. 297.*

Nævus of the Eyelid cured by Platinum Wire heated Red-hot by Galvanism.—[In this case, a child 5½ months old was admitted an in-patient at the Bristol Eye Hospital, with nævus of the upper eyelid of the right side; various remedies had been resorted to, but with no good effect. Mr. Bernard describes the operation as follows:]

Two pieces of thin platinum wire were passed at right angles to one another through the base of the nævus, and heated red-hot, for the space of rather more than half a minute, by connecting them with a galvanic battery; the wire was then withdrawn, and cold-water dressing applied. Small superficial sloughs formed at the points where the wire penetrated the skin, but healed in about three weeks.

The tumor was much diminished in size, and I consider that, after a little time, the remains would have been obliterated; however, as the swelling had increased on each side of the part of the lid which had been treated with the red-hot wire, I proceeded to introduce four platinum wires at right angles, heated as before, with results perfectly satisfactory, as the present appearance of the child is as follows: Tumor quite obliterated; skin of eyelid rather less movable than the other side, and showing six small cicatrices, which, however, are not visible at the distance of two yards. *Part xxv., p. 351.*

Treatment of Tinea Tarsi.—First carefully remove all the scales and crust from the eyelid, then rub the solid nitrate of silver along the edge of the lid; repeat this twice a week. It is absolutely necessary that all deposit be cleared away, so as to allow the remedy to come in direct contact with the cuticle, the opening of the hair follicles, orifices of the Meibomian glands, etc. If the treatment be steadily persevered with, the

redness subsides, the thickening of the lid is removed, and the hairs previously destroyed grow again.

The disease appears to be much more frequently secondary to measles than to any other affection, and its subjects are generally more or less cachectic. It often varies remarkably with the condition of the patient's health. Tonics are, therefore, indicated, together with a liberal diet.

Mr. Startin's treatment consists in smearing the edge of the lid every night with a mild mercurial ointment (ammonio-chloride, 10 grains to the ounce), and administering an arsenical tonic in combination either with iodine or mercury.

Part xxx., p. 184.

Tarsul, or Meibomian Tumor.—This is an encysted growth, and, therefore the cyst must be taken out, or injured by laceration, so that adhesive inflammation may follow. This has generally been done from the inside of the lid. Mr. Walton does it from the outside. He divides the cyst outside the lid, squeezes out the contents, and then, if possible, pulls away the cyst with a pair of forceps; or if he fail in this, he dissects it out. The external incision being made horizontally, there need be no fear of a scar.

Part xxxi., p. 198.

Ointment for Tinea Tarsi.—Almost the sole use for ointments in ophthalmic practice is against tinea of the lids. For the treatment of this most troublesome disease, several formulæ are contained in the Moorfields Pharmacopœia, most of them having some form of mercurial as their active ingredient. The dilute nitrate of mercury ointment is the one which enjoys by far the largest amount of confidence.

Part xxxvii., p. 186.

Tinea Ciliaris.—The old incrustations about the roots of the lashes should be removed by means of a pair of broad blunt forceps, meeting only at their extremities. The scab being seized close to the edge of the lid, must be gently detached and drawn a little forward, but not over the whole length of the lashes; these latter should be cut off close to their roots. Nitrate of silver should then be applied on the outer edge of the lids (avoiding the Meibomian orifices). The scabs cannot accumulate again when the lashes are kept short; the lashes themselves are preserved; and any applications are more readily made.

Part xxxvii., p. 312.

Eyelid—Restoration of.—The great secret of success in plastic operations about the eye, is to take a flap from the adjoining skin nearly twice as large as may seem to fit the wound made for its reception. The subsequent contraction will then make a good fit. If hemorrhage comes on after the flap has been fitted, and you cannot stop it, lift up the flap again and apply the actual cautery to the vessel, then replace the flap and use wire sutures.

Part xxxix., p. 261.

Cancerous Ulcer near the Inner Canthus.—An irregular, slowly-spreading cancerous ulcer close to the inner canthus of the eye was successfully extirpated by the sulphate of zinc paste, as recommended by Dr. Simpson. A few grains of the sulphate having been heated to drive off the water of crystallization, were powdered and made into a thick tenacious paste, by the aid of a little glycerine. A little of this was applied over the ulcer and its hard edges, and the whole covered with dry lint. The unhealthy sur-

FEET.

Paralysis affecting the Feet.—[Mr. Braid gives several cases arising from a *paralytic state* of certain muscles, instead of the common cause, viz., a too powerful or contracted state. For example, he excises a small portion of the particular tendon of the disease, and by the consequent union of the divided ends, produces such a degree of contraction in the paralytic limb as to render it perfectly healthy. The following case will more completely illustrate the principle.]

Miss —, æt. six years, has been deprived of the use of her feet by a paralytic stroke. Her present condition is this: the legs are powerless, dangling by the side of her crutch, without reaction; the feet are cold and is much colder than is natural; the foot assuming the slight degree of varus, so that it would, if brought to the normal position, its outer edge, the toes inclined a little inward and the heel everted. I made a longitudinal incision along the course of the tendon of the peroneus tertius, which I elevated, and excised a portion of it, to the extent of the sixteenth of an inch. I then closed the wound with plaster of Paris splints and bandages, so as to approximate the divided ends of the tendon in contact.

In twenty days she was enabled to walk about in a ladder, and in a week more to throw her crutches aside entirely. She is now well and strong ever since. Besides the operation, nothing was done in this case, excepting the use of a stimulating liniment, which was employed before without the least benefit.

Fetid Perspiration from the Feet.—This will generally be cured by washing the feet night and morning in salt and water, and applying a little olive oil.

The best effect will be produced by bathing the feet in a strong solution of subcarbonate of soda.

Flat Foot.—The tendons which require division in severe cases of flat foot are those of the peronei and the extensor communis digitorum. "In congenital cases," observes Mr. Tamplin, "as far as my observation goes, the measure is invariably necessary, although the deformity may be slight, and the foot is easily brought into and held in position." The moment the feet are released from the instrument, the deformity returns, even after a period of twelve to eighteen months. But subsequent division of the peronei and the common extensor of the toes is speedily followed by a cure of the deformity, and removal of all tendency to contraction.

Part xxxviii., p. 145.

Disease of the Tarsus—Conservative Operations.—According to Mr. Erichson, disease of the tarsus, in the vast majority of cases, commences in the bones, and affects the articulations secondarily. If the os calcis is the primary seat of disease (and this bone is the most frequently affected of all), a T-shaped incision having been made, gonge away the diseased osseous structures. This may generally be done with success, for however extensively the cancellous structure of the bone is involved, provided an external sound shell exists, the removed bone in most cases will be replaced by fibroid tissue, which in time, to a great extent, ossifies. If the whole bone is involved, and the astragalus partially, the former must be entirely removed, and the latter gouged as far as necessary. Disease commencing in the astragalus, rarely long continues confined to it, and it is the result of experience that gouging operations, even if performed early, are rarely of much benefit; excision ought, as a rule, to be practised in preference. If the ankle-joint and calcaneum have become implicated, in addition to removal of the astragalus, the diseased parts must be gouged from the under surface of the malleolar arch and upper surface of the calcaneum, and the two brought together. A strong and even movable foot will result. When the scaphoid or cuneiform bones are primarily diseased (the middle of the three cuneiform is so most frequently), the great tarsal synovial membrane becomes implicated, and Chopart's operation may be required, though sometimes partial removal, and gouging similar in principle to the operations already mentioned, may suffice. The cuboid is seldom primarily diseased. Infants and very young children frequently recover from caries of the tarsal bones with abscess by proper constitutional and local treatment, so that operations on them should not be hastily performed.

Part xl., p. 84.

FEVER.

Congestive Fever—Hemostasis.—If the means used by Dr. Buckler to arrest the flow of blood be found on further trial to act on the general system in the way he affirms, we shall certainly possess an important addition to our remedial powers in many of the most dangerous and most rapidly fatal affections which we have to encounter. The object to be had in view in Dr. Buckler's means of hemostasis, is to fill any particular limb, or even all the limbs, with blood, by arresting its course through the great veins and branches, and by this means depriving the trunk and the several vital organs of a considerable portion of their blood. This fluid, in short, is *detained* in the extremities by ligatures placed round them, and

the blood is thus arrested; the limbs become gorged, and the body contains considerably less blood than usual. This practice, if found successful (and it has been so in Dr. Buckler's hands), will be valuable to prevent hemorrhage, to relieve inflammatory engorgement in parenchymatous organs, or inflammations of membranous tissues, to remove simple vascular congestion, and to restore the balance of the circulation. The process consists simply in tying a bandage round a limb sufficiently tight to arrest the venous circulation, while the arteries are allowed to pulsate. The veins thus become swollen, and appear as if they would burst; all the blood they contain being thus as effectually withdrawn from the general circulation as if it had been drawn into a basin. If this be done on all the extremities at once, the skin becomes relaxed, and the pulsations of the heart and arteries weakened; and if the patient have previously been weakened by loss of blood, or by disease, so that the vessels shall be partially empty, we shall then find the skin to pour out the most abundant perspiration; the patient complains of feeling light about the head, of sickness, and weakness; and we shall find the carotids pulsating feebly, and all the symptoms of syncope threatening. There are many cases in which it is very difficult to produce syncope, owing in some measure to the difficulty of the blood being extracted from the brain, from the circumstance of the heart and lungs being so gorged, that the downward current from the brain is prevented; this would be obviated by detaining a portion of the blood in one or more extremities, until our object is accomplished, when we could at pleasure allow the fluid to return to the general circulation. Then, again, there are cases in which syncope takes place from the slightest causes, and in which the horizontal position does not remedy the evil with sufficient rapidity, but by compressing the veins of the neck, and allowing the carotids at the same time to pulsate, we may rapidly relieve this state by detaining the blood in the cerebrum: and even when the patient remains in the upright position, this method will generally succeed without placing him horizontal. But the most important object which this means will enable us to accomplish, is to relieve internal organs of congestion, and to assist general or local blood-letting in the subduction of inflammation. In short, according to Dr. Buckler, "hemostasis accomplishes what no other known remedy is capable of doing. It puts syncope under our control, both as to duration and degree. It is capable of exerting, under given conditions, a more powerful control over the circulation than the lancet, antimony, or digitalis, and controls the heart's action, without exhausting the vital forces, or giving rise to ill consequences, which the protracted use of most of the sedative agents is likely to do. And, finally, hemostasis in the hands of judicious practitioners, must prove a means of saving an incalculable amount of human blood."

Part vii., p. 67.

Treatment of Fever.—Dr. Cowan has taken pains to collect the experience of others, as follows:

A surgeon in extensive practice has found the following powder very advantageous in 140 cases of simple fever, continuing its use until the gums were slightly affected:

R Nitrate of potash, four grains; tartrate of potash, a quarter of a grain; mercury with chalk, five grains. Mix. Repeated every four hours.

And in all fevers of a low type he was convinced of the benefit of the saline treatment. His formula was:

R Chloride of soda, three drachms; carbonate of soda, two drachms; hydrochloric acid, half a drachm; camphor mixture, six ounces. Mix. Half an ounce every hour.

He founded his experience upon notes of 120 cases.

In reference to the use of mercury, Dr. Macartney says, "In no single instance have I known mercury fail in arresting the progress of fever, provided it be not combined with visceral affections or characterized from the beginning with great prostration of strength."

Mr. R. Stevens asserts the value of mercury in all contagious diseases, and he has met with more than ordinary success since employing it in the treatment of fever.

Dr. Elliotson, and many other writers, speak favorably of the mild use of mercury in this disease; and when the type was inflammatory it might, perhaps, be always judiciously prescribed.

Mr. George Ross, of Enfield, strongly recommends the employment of ipecacuanha emetics, followed by fifteen to thirty grains of calomel, and an equal quantity of jalap, four hours afterward. This is repeated on the recurrence of exacerbation of the symptoms, which assume in almost every case a quartan type, two or three times, and neither excites excessive purging or any inconvenient constitutional disturbance. The quantity of calomel necessary seldom exceeds a drachm; the effect is quickly beneficial, the convalescence rapid, and the duration of the complaint curtailed. He objects to repeated small doses of mercury, as more distressing to the patient, more likely to excite intestinal irritation, and much less successful in the result. He thinks well, though less favorably, of the saline treatment, and in intractable cases would administer the nitrate of potass in doses of ten to twenty grains three times a day.

In the "Lancet" for December 14, 1839, some interesting results on the use of salines are given by Dr. Jordan Lynch. He practised in the worst districts of London, and states that his successes, after employing the following treatment, exceeded his most sanguine expectations. After premising an emetic, and a brisk purge of calomel and rhubarb, or jalap, he gave a solution of three drachms of common salt to the pint of water in the twenty-four hours, the patient drinking largely of cold spring water, adding to the mixture a drachm of muriatic acid as the symptoms improved, with effervescing soda powders till convalescence was complete, supporting the strength with beef tea and porter. The acid effectually checked the diarrhœa. Out of 97 cases not one died, and recovery, he says, took place in as many days as it required weeks on the ordinary plan.

Dr. Copland, in his elaborate article, "Fever," par. 506, says, "The chloride of soda is a valuable medicine in all the typhoid forms of fever when judiciously prescribed;" and Chomel, who gave it an extensive trial, states that it has proved more successful in low fevers than any other means, when perseveringly employed. Drs. Graves and Stokes also think highly of it in petechial fever.

Dr. Wilson, of the Middlesex Hospital, adopted Dr. Stevens' saline treatment, with great advantage, during the prevalence of petechial fever in 1837. The patients were all put into a warm bath and washed with soap, the head shaved, and cold applied if necessary. The following powder was given in water every four hours:

R Carbonate of soda, half a drachm; chloride of sodium, one scruple; chlorate of potash, six grains. Mix.

If this were refused, a drachm of the chlorate of potash in a quart of water was given for drink in the twenty-four hours. In some severe typhoid cases, where active treatment was inadmissible, in addition to wine and beef-tea, Dr. Graves gave carbonate of soda, one scruple; nitrate of potash, ten grains; every three hours, with great success.

Dr. Furnival, in his work on consumption and scrofula, says, "In the middle or even later periods of typhus, I must bear testimony to the great efficacy of large doses of the sesquicarbonate of soda alone, every four hours, either in water or some tonic infusion. It is surprising how soon the tongue will clean and the collapse give way."

Dr. Bright speaks favorably of a similar plan, and the common effervescing draughts, prescribed as simple refrigerants, may be more actively useful than the prescriber suspects.

Among the German writers there is extensive evidence in favor of the hydrochlorate of ammonia in putrid adynamic fevers, and a very general preference has been attached by writers of all classes to combinations in which chlorine plays a part. Indeed, the compound recommended by Dr. Stevens is probably resolved in the stomach into the muriates of soda and potash. The nitrate and chlorate of potash are also particularly deserving of trial.

Dr. Paris states that in Westminster Hospital a drachm of the muriatic acid combined as a drink has been given for many years in typhus fever with evident advantage; and in the "Lancet" of 23d January, 1841, a very strong statement is made by Mr. Alghuen, of the value of the oxy-muriatic acid, when freely administered under similar circumstances. Huxham, Fordyce, Frank, Hufeland, and many others, unite in the recommendation; but both theory and practice preponderate as a general rule in favor of the preceding class.

Dr. Buzorini thinks that ipecacuanha possesses a specific power of exciting the nervous system. It increases all the excretions, moderates the alvine discharges, diminishes restlessness and delirium. Dr. B. found his opinion upon ten years' experience, and advises its being given in infusion in the proportion of one or two scruples of the root to five or seven ounces of water. Dose, half an ounce every two, three, or four hours. In influenza, and fevers with bronchial complication, especially in children, it might prove a very useful and cheap practice.

Frank's celebrated fever powders consisted of tartar emetic, six grains, and bitartrate of potash, half an ounce, divided into six powders, and one given every hour.

A provincial physician in extensive practice, and with keen observing powers, attributes great benefit to the following formula in all cases of severe febrile disturbances, eruptive or otherwise:

R Liquor of the acetate of ammonia, five ounces; potassio-tartrate of antimony, six grains; sirup of poppies, or of ginger, one ounce; tincture of opium, one drachm; spirit of nitric ether, six drachms. Mix. Half an ounce every one or two hours.

It excites vomiting, and then purges and sweats.

Against headache in congestive fever, the formula of Raspail has been much vaunted:

R Liquor ammoniac, one ounce; distilled water, nine ounces; chloride

of soda, five scruples; camphor, ten grains. Adding any agreeable scent.

A piece of linen to be steeped and applied over the part, carefully protecting the eyes by a thick bandage above the brows. The action is often rapid, the pain ceasing in fifteen to thirty minutes. It ought to be reapplied at the commencement of the paroxysm, and is also very valuable in other local congestive conditions. M. R. thinks there is a peculiar chemical change excited in external applications depending on the nature of the local action. Before concluding, we would just allude to the use of belladonna for the relief of head symptoms with *contracted* pupil, as recommended by Dr. Graves, and to the good effects of emetic tartar and opium in cases of cerebral congestion, as stated by the same observer. Dr. Stokes' excellent observations on the indications for the use of wine in fever, being founded on an examination of the heart rather than the pulse, are also of a truly valuable and practical character.

Part viii., p. 20.

Lobelia Inflata.—Dr. Livezey, speaking of the uses of lobelia, says:

This brings me to the consideration of the lobelia inflata in febrile disorders, incident to every section of country, more or less, in summer and autumn. When it is desirable (as in fact it is always so) to lessen vascular action, and as a febrifuge, the "nitrous powders" sink into utter insignificance in comparison with this plant, which is not liable to the same objection as the tartarized antimony used in combination with calomel and the nitrate of potassa by many of the older practitioners, which too frequently increases that tenderness and erethism already existing in the mucous membrane of the stomach and intestines.

In high vascular action, also, with cerebral disturbance, when the application of cups to the nape of the neck, etc., fails in restoring rationality to the sensorium, the most admirable results follow the administration of an enema, largely composed of the lobelia; or when accompanied with enervation and subsultus tendinum, the efficacy of the enema will be much enhanced by the addition of a portion of pulv. valer. and tinct. capsicum or camphor, which, when thus combined, produces a powerfully revellent action, changes the scene of excitement, and leaves the cerebral functions free.

Part xvi., p. 134.

Transfusion of Blood.—In many cases of collapse occurring in fever, transfusion of blood might properly be used; as in the exhaustion which occurs in a variety of Irish fever, the crisis of which is marked by excessive perspiration; and also in a more advanced stage of the convalescence, when death is imminent from simple weakness.

Part xx., p. 127.

Rheumatic Fever treated by Lemon-Juice.—In a case of rheumatic fever in Charing-Cross Hospital, half an ounce of lemon-juice, given three times a day, was found very successful in removing the pains in the joints, after various other remedies had been tried.

Part xxii., p. 37.

The Pulse in Fever.—A good mode of estimating the strength of the pulse in fever and other asthenic states, is to cause the patient to sit up in bed, and compare the condition of the pulse in this semi-erect posture with its state in the horizontal position.

Part xxv., p. 26.

Fever.—Fever in one sense is incurable, but, by proper management, it

cures itself. "We cure the patient by preventing him from dying" during a certain period, and then the disease dies out; we keep him up by food, stimulants, and tonics. One of the most important doctrines of the day, is, that fever may produce local symptoms very like inflammation, but not really so; and if these local affections be treated on the antiphlogistic plan in cases of fever, it is probable that the results will be fatal. Therefore, in fever, although the patient be attacked *apparently* by inflammation of the brain, causing delirium, etc., don't deplete, but steadily support the patient by food and small and repeated doses of brandy or wine, say a teaspoonful or tablespoonful every hour or two. The same principle must be remembered in affections of the lungs, heart, and digestive organs. All or some one of them may be attacked by apparent inflammation, but don't deplete if you see typhus present. On the other hand, boldly give food and stimulants, till you see the brown tongue assuming a healthier aspect, notwithstanding the apparent inflammatory symptoms, as it is the rarest thing possible for real inflammation to co-exist with fever.

Part xxix., p. 17.

Surgical Fever—Veratrum Viride.—The veratrum viride has been very extensively used in America, and its effects are thus described: The administration of a concentrated tincture reduces the pulse and keeps it reduced with a certainty, and to a degree, which can be effected by no other drug. Dr. Barker and others have published cases where they have thus brought down the febrile pulse in a few hours, from 140 beats to 80, 60, or less in the minute, and kept it at will at this lower standard. It thus is a powerful arterial sedative; but it has this further important action, that it is a powerful depurant, stimulating the action of the skin, kidneys, and secretory functions generally. It thus may be substituted for colchicum in the treatment of acute gout and rheumatism; most probably it depends for its therapeutical effects upon the common principle of the genus veratrin, if so, we may fulfill the same therapeutical indications with the species which is in all our European pharmacopœias, the veratrum album.

Part xl., p. 93.

Sleeplessness During Fever—Use of Tobacco.—The most important medicinal property of tobacco is the application of the moistened leaves to the bare scalp in severe cases of fever attended by pervigilium, and delirium. If it succeed in inducing sleep under these circumstances, it will be an invaluable remedy, for we know of no more deplorable condition, or one more fraught with danger, being the forerunner of collapse and death. We have been told of a curious and efficacious use of tobacco in America: the fact was not stated by a professional person, though by one of undoubted veracity. A leaf of tobacco is often applied over the radial artery, or the pulse at the wrist. It seldom fails to produce free vomiting. Its powerful effects when applied to the whole surface of the scalp may be easily conceived.

Part xii., p. 31.

Fever.—Dr. W. Stokes says:

A certain change has occurred in our opinions as to the origin of the so-called typhoid inflammation of the lung. We at one time held that it was the co-existence of gastritis or enteritis which gave to the pneumonia the typhoid character. This view was held by us before we had, by that imperceptible power of conviction which arises from experience, admitted the two following principles in their entirety:

1st. That symptoms which are diagnostic of local disease, where the patient has not an essential fever, are either altogether valueless or much lessened in value when such a condition exists; and

2nd. That the gastric or gastro-enteric lesion is rare even as a secondary disease in fever; so that when irritation of the structures of the intestinal tubes occur it is a remote, tertiary, and accidental phenomenon.

Our present opinion on this matter is in general the following: that in cases in which there are, in connection with the signs of typhoid lesion of the lung, evidences of gastro-intestinal disease, both the pulmonary and abdominal lesions spring from the one parent condition, and that so far from the specialties of the pulmonary being derived from the accidental complication with the abdominal disease, both have a common character originating in the same source. I am quite sure that a large proportion of these cases described as asthenic pneumonia depending on gastro-intestinal complication, have been examples of essential fever, with the two affections coexisting as secondary lesions.

Recollect that the ordinary rules of diagnosis lose much of their value in typhus fever. You may have all the signs of inflammation of any of the vital organs, without the slightest organic change. Even the physical signs of a pneumonia, when occurring in a case of typhus, are not to be taken as proof that a local inflammation has occurred.

Part xxxii., p. 28.

Low Fever.—The blood of low fever more nearly resembles that of scurvy and purpura than that of any other disease. There is the same excess of black blood discs, the same deficiency of neutral salts and organizable lymph. As in scurvy, so in low fever, great benefit will be derived from the use of acids—muriatic acid, being the least foreign to the system, should be preferred. Give this acid, diluted with water, freely to the patient, promoting the action of the skin by tepid sponging. We must not expect this or any other treatment to cut short the disease, only to promote and hasten a favorable termination.

Part xxxvii., p. 17.

ENTERIC, OR COMMON CONTINUED FEVER.

In a communication on fever by Dr. Mettauer, we have the following:

Another modification of the ipecacuanha pill employed by us, was the combination of two or three grains of the inspissated bile of the swine, with one grain of ipecac. and two of the carbonate of potass. It seemed to act with decided effect, as a supporting and discerning remedy, upon the mucous membrane of the stomach and intestines, and as a diaphoretic at the same time. It was especially valuable in those cases attended with a denuded and raw tongue; this organ always becoming more healthy after its administration.

We were induced to resort to it first in the low, depressing state of continued fever, with the design of acting especially on the gastro-intestinal mucous membrane, which we believed became disorganized in such cases in a great measure from the want of the biliary influences; and in these cases it always acted with decided benefit. It went to substitute the action of the bile. Simply heating the bile over a sand-bath until it becomes dry and pulverizable, was our mode of preparing it. It is a valuable

agent in dyspepsia, and in many chronic affections attended with defective biliary secretion. In chlorosis, amenorrhœa, some forms of dysmenorrhœa, and constipation, we have also employed it with decided advantage.

Part viii., p. 71.

Typhus and Enteric Fever.—Dr. Ritchie sums up his method of treatment as follows :

The chief indication is to destroy the inflammatory action in the follicles of the intestines, and in the lungs, when it exists there, consistently with a due regard to the irritation of the cerebro-spinal axis, and the loss of fibrin and of red globules by the blood, which distinguish this disease from simple inflammation. This is to be done, 1st, by restoring the circulation and secretion of the skin by the warm bath, and a flannel under dress ; 2d, by detraction of blood by cupping or leeches from the abdomen or loins ; 3d, by blisters, and afterward constant warm fomentations to the abdomen ; 4th, by the steady use of opium, united with ipecacuanha, borax, and chalk, with or without catechu, and in doses proportioned to the severity of the diarrhœa, or, where this symptom resists these means, and the bronchitis is not acute, by the addition to the opium of acetate of lead ; 5th, by a strictly farinaceous or milk diet ; 6th, besides these modes of fulfilling the indication mentioned, it is necessary to support the strength, in advanced stages, to the extent that the bronchitis does not prevent, by the use of small quantities of wine. Pneumonia is to be met by mercurial friction externally, and by the hydrargyrum c. cretâ internally ; and hemorrhage from the bowels, by super-acetate of lead, and renewed blisters to the abdomen ; or when the fever of pneumonia forbids the employment of the acetate of lead, by the use of turpentine. *Part xiv., p. 33.*

Cerebral Complication in Continued Fever.—When the cerebral affection in the course of continued fever is attended by a quick and feeble pulse, great restlessness, total want of sleep, subsultus, and much disturbance of the nervous system generally, Dr. Graves' plan of treatment is highly valuable. It consists in giving tartar emetic with opium, the formula being, tartar emetic, four grains ; tincture of opium, half a drachm to a drachm ; camphor mixture, eight ounces ; half an ounce or an ounce to be given every two hours. *Part xviii., p. 28.*

Simple Continued Fever of Children.—The simple continued fever of childhood was for a long time overlooked, and was then described as remittent fever, worm fever, or hectic fever, and was supposed to be dependent upon gastric or intestinal irritation. Dr. West considers that the affection so described is really identical with the continued fever of the adult.

The heat of skin and the craving thirst are the two most urgent symptoms in the early stages of the affection. The first of these is generally relieved by the tepid bath at 90° or 92° every morning, and by sponging the surface of the body several times a day with luke-warm water. The desire for cold drink is often very urgent, and no beverage is half so grateful as cold water to the child. Of this it would, if permitted, take abundant draughts, but it should be explained to the attendants that the thirst is not more effectually relieved by them than by small quantities of fluid, while pain in the abdomen is very likely to be caused by the over-distention of the stomach. The cup given to the child should therefore only

contain a dessert or teaspoonful of water in it, for it irritates the little patient to remove the vessel from its lips unemptied.

During the first week the treatment is chiefly expectant, consisting in the use of light aliment; simple salines, such as the citrate of potash, with a little ipecacuanha wine if there is troublesome cough; and a little castor oil if the bowels are confined. If there is a disposition to diarrhœa, give equal parts of Dover's powder and hydrarg. c. cretâ once or twice a day. Ascertain every day whether there is abdominal pain and tenderness; if it exists, and is not relieved by the application of linseed meal or bran poultices, the application of a few leeches may be needed. Local depletion may also be needed, for symptoms of cerebral disturbance, if there is great heat and flushing, and noisy delirium; as also if there is much moaning, restlessness, and headache. But if the delirium occurs only at night, and is of a tranquil kind, it will suffice to apply cold to the head, and to keep the apartment cool and quiet.

In mild cases of the disease, that expectant treatment usually appropriate during its early stages may be continued throughout its course; great caution being exercised as the child begins to improve, to prevent its committing any error in diet. When severe, however, the second week often brings with it a train of symptoms that require many modifications in the plan of treatment. The vital powers need to be supported, and the nervous system requires to be tranquillized; and this is to be attempted by means similar to those which we should employ in the management of fever in the adult. The mere diluents which were given during the previous course of the fever must now be exchanged for beef or veal tea or chicken broth, unless the existence of severe diarrhœa contra-indicate their administration. In that case, which, however, does not very often occur, we must substitute arrow-root, milk, and isinglass, for animal broths. In a large proportion of cases, nutritious food is all that will be required, but wine is sometimes as essential as in the fevers of the adult; and the indications for giving it are much the same in patients of all ages. Even though wine be not necessary, I generally give some form of stimulant during the second and third weeks of the affection. The prescription which I usually follow is one much praised under such circumstances by Dr. Stieglitz, of St. Petersburg. For a child of five years old, it is four minims of dilute hydrochloric acid, eight of the compound spirit of sulphuric ether, and three drachms of camphor mixture every six hours. It seldom disorders the bowels if they be not much disturbed at the time of commencing its administration; while a small dose of Dover's powder, as a grain or a grain and a half at bed-time, is doubly useful, both in checking tendency to diarrhœa and in procuring sleep for the child, who, without it, would probably be watchful and delirious all night long. So long as any severe abdominal symptoms are present, I abstain from the use of the acid mixture, but give the mercury and chalk, with Dover's powder, every four or six hours, to which I occasionally add an opiate enema at bed-time; and support the strength by food and wine, as may be necessary.

The only complication that is apt to be troublesome is the bronchitis. Usually, however, the cough to which this gives rise is rather an annoying than a dangerous symptom; and it is in general more harassing at the commencement of the affection, and again when convalescence is beginning, than during that time when the graver symptoms are present. A

little ipecacuanha wine, nitrous ether, and paregoric, will usually relieve it, to which it may occasionally be expedient to add the application of a mustard poultice to the chest.

[In the treatment of the weakness which is left by the disease, Dr. West thinks that tonic medicines are unadvisable; change of air, and especially removal to the sea-side, are not only safer, but are almost always successful.]

Part xviii., p. 32.

Treatment of the Diarrhœa and Dysentery of Fever.—In the diarrhœa and dysentery of fever, give oil of turpentine in doses of eight minims, in the form of emulsion, and if the case is tedious, change the form of exhibition, by giving Chio turpentine in pills. In some cases the administration of mucilage and sedatives, together with the application of leeches and blisters over the cœcum, is useful, and so also is the application of mercurial ointment in the same region; but mercury, given internally, and the mineral astringents given either by the mouth or by enema, are inefficacious.

Part xi., p. 22.

Spotted Fever.—In the bloody diarrhœa of spotted fever, give two or three grain doses of gallic acid.

Part xxii., p. 336.

INFANTILE GASTRIC FEVER.

The origin of gastric fever occurring among children is usually to be ascribed either to unhealthy ingesta or depraved secretions. The pulv. sodæ comp.* of Guy's Pharmacopœia, in doses of three to eight grains at night, and a full dose of the pulv. rhei salin.† every morning for a week or so, will in most cases be found very successful treatment. To the latter compound, so well known to the profession for its almost specific power in these affections, Dr. Fordyce accorded this elaborate praise: "Had I been more ambitious of dying a rich man, than of living a useful member of society, the powers of our anti-hectic powder in curing, as if by miracle, the hectic fever and the swelled bellies of children in this town would have remained a secret while I lived."

Part xi., p. 61.

Nitro-Muriatic Acid in the Gastric Fever of Children.—A remedy which is a favorite one with Dr. Arthur Farre, in his out-patients' room at King's College Hospital, in the treatment of gastric fever in young children, is the nitro-muriatic acid. To a child of a year and a half to four years old, a mixture containing a drachm of each of the diluted nitric and hydrochloric acids, to six ounces of water, is ordered, in doses of half an ounce, three times daily. At the same time, a dose of grey powder (four grains) is given every night at bed-time. If the disease be passing off, and tonics needed, the grey powder may be omitted, and the acids given in an infusion of quassia, or with bark. The peculiar tongue of infantile gastric fever is well known, resembling closely that of scarlet fever in the prominence of its papillæ, but differing from it in having a white, instead of a red ground. Thus the papillæ present in the midst of a whitish fur, but in some cases the centre of the tongue is red and beef-like, the sides only being furred.

Part xxxvi., p. 27.

* Sodæ carbonatis exsiccatae, 3 v.; hydrargyri chloridi, 3 i.; pulv. cretæ compend. 3 x. M.

† Rhei radice pulv., 3 i.; potassæ sulphatis, 3 ij. M.

NERVOUS FEVER.

Use of Tartrate of Antimony with Opium in the Advanced Stages.

—The use of tartar emetic in cases of fever, whenever there is undoubted evidence of the determination of blood to the head, producing head-ache, loss of sleep, and delirium, is too well known to require any notice in this place; but its use, combined with opium, in the advanced stages of nervous fevers, is a much more modern practice, and we believe the credit of its first introduction into practice with this particular purpose is due to Dr. Graves, of Dublin, who, in his work on clinical medicine, gives a very interesting case, among others, in elucidation of his particular practice. It was that of Mr. Cookson, a medical pupil, who was attacked with fever, which seemed to be going on well for seven or eight days, when symptoms of a hysteric character showed themselves: and, it must be remembered, that in most cases of fever when such is the case, nervous symptoms of the most formidable character will generally come on. On the 14th day his tongue was black and parched, his belly tympanitic, and he had been raving for the last four days, not having slept an hour for four or five days and nights. Dr. Stokes saw the case. Besides other means, the cautious use of opium was resorted to, Dover's powder, and opiate enemata; which, failing in procuring sleep, a full dose of black drop was given, with the conviction that if this failed in procuring sleep, he would have no chance of life: next morning this was found to have failed; he had universal tremors, and subsultus tendinum, his eye was suffused and restless; he had been lying for some days entirely on his back, his tongue was dry and black, his belly tympanitic, pulse 140, quick, and thready; his delirium was chiefly shown in short broken sentences, and in a subdued tone of voice; and it was now eight days and nights since he had slept. Under these circumstances, Dr. Graves suggested a similar medicine to that which he found so successful in delirium tremens, viz., a combination of tartar emetic and laudanum, in the following form: R Ant. tartar, gr. iv.; tinct. opii, ʒj.; mist. camphoræ, ʒviij. A tablespoonful to be given every second hour. The success of this was magical, and the patient recovered rapidly. Of course, it would be well, in these cases, to proportion the antimony and laudanum to the degree of congestion and nervous symptoms. A certain amount of congestion might not contra-indicate the remedy, provided we increased the tartar emetic and diminished the laudanum; and where the nervous symptoms preponderated, we might reverse this, give more laudanum and diminish the tartar emetic.

Part vii., p. 10.

Irritative Fever—Treatment of Constitutional Irritation, arising from Injury or External Diseases.—[It is quite correct, Mr. Cooper observes, to use topical depletion, sedation, and counter-irritation, at the same time as we give opium, bark, or stimuli. He remarks further:]

Purgatives and sudorifics are other antiphlogistic means employed to allay constitutional excitement, and, I think, are generally best employed together, the object being to restore all the secretions which the irritative fever has had a tendency to suppress, and not to act merely on one particular secretion; for as the skin is dry, the bowels costive, the bile deficient, and the urine less abundant than natural, each of these organs requires the appropriate remedy to increase its natural action, and I know of no better medicine than that which Sir Astley Cooper for years prescribed under these circumstances:

R Hydr. chloridi, gr. iij.; pulv. opii, gr. ss. m. ft. pil. statim sumenda.

R Magnes. sulphatis, ℥j.; liq. ammon. acetat. 3j.; liq. antim. tart. 5j.; trās. hyocyami, 3j.; aquæ menthæ virid. 5viij.; M. capt. cochl. larg. ij. quæque 4ta horâ, donec alvus bene responderit.

This remedy you will rarely find fail in restoring secretions and allaying constitutional irritation. Effervescing draughts will also be frequently found highly beneficial, particularly when there is any tendency to sickness, and antimony in that case should not be employed. Great attention should be paid to dietetic observances, and abstinence from animal food should be strictly enjoined, or, at any rate, nothing beyond weak beef-tea, or broth, should be permitted at the commencement of the excitement, and only under certain circumstances should it ever be allowed. Large quantities of diluents are also useful in maintaining the secretions. When inflammation is attended with symptoms of a typhoid character, general antiphlogistic means are inadmissible, as the patient is liable to become excessively reduced by any copious evacuation; yet at the same time, it is not to be considered that such patients, however depressed, will bear animal food; for while the skin is hot, the pulse quick, and the secretions suppressed, the bowels must still be gently acted on, and small doses of opium will be found beneficial after they have been sufficiently relieved; but not until the pulse and temperature of the skin have been lowered, can animal food be safely permitted.

Part xvi., p. 307.

INTERMITTENT FEVER.

Hydrocyanoferrate of Quinina.—It is well known that the sulphate of quinina, as well as most other remedies, often fails in the treatment of intermittent fever. When this is the case it is well to remember that there is another remedy not hitherto much employed in this country, but especially used and recommended by Signor Bertozzi, of Cremona, and Dr. Zaccarelli, who found it to succeed in those cases especially when the sulphate had failed.

The hydrocyanoferrate of quinina, when in small fragments, is of a pægreen color; its taste is intensely bitter; it dissolves in cold, but better in hot alcohol, and is precipitated almost entirely from the solution by water. In prescription, it would be an error to promote its solution in water by means of dilute sulphuric acid, as is done in the case of sulphate of quinina; the salt would be decomposed by this acid, and the solution would become blue. It ought not to be prescribed with tincture of cinchona, and consequently not with infusion or decoction. The dose, given by Doctor Zaccarelli, was equal to three grains and a half troy, repeated according to necessity.

Although this febrifuge is precipitated by water from its alcoholic solutions, it separates in the state of so fine a powder, and remains so long suspended, that it will answer for exhibition very well in this state. The following formula will be found convenient:

R Hydrocyanoferratis quininae grana quatuor, spiritus rectificati drachmam. Solve. Adde Aquæ, vel,

Misturæ Camphoratæ drachmas septem. Misco, fiat haustus, ut res nata sit, phiala prius agitata, sumendus.

In pillâ.

℞ Hydrocyanoferratis quiniæ grana viginti-quatuor ; mucilaginis gummi Arabici, q. s. fiat massa quam divide in pilulas duodecim.

These pills will be of a proper size, and two of them will constitute a dose ; to be repeated according to the discretion of the prescriber.

M. Donovan believes that the liquid form is preferable to the pilular, unless under peculiar circumstances. *Part ii., p. 48.*

Piperine in Intermittent Fevers.—Dr. Hartle recommends the use of piperine in those cases of intermittent fever which have resisted the use of quinine. Dr. Hartle says :

I began, as soon as the sweating stage was established, by giving three grains of piperine every hour, until eighteen grains had been taken ; and on the following day, when the intermission was complete, I gave the same quantity every three hours. It has in every case succeeded in checking the paroxysm, and as soon as that was accomplished, I gave for some days the following pills :

℞ Pilule hydrarg. gr. j. ; piperinæ, gr. ij. ; sulph. quiniæ, gr. ij. ; sirup. com. q. s. Fiat pil. No. l. omni mane, meridie, et vespere capienda.

Part iii., p. 37.

Large Doses of Quinia in Intermittent Fever.—Recommended by Dr. Flint.

The general excitant effects of the quinia are said to be usually almost imperceptible. There are cases, however, in which it would be inadmissible, on account of the inflammatory state of the gastric mucous membrane, in which it would be well to administer the drug as an enema, as recommended by Dr. Elliotson.

Part vi., p. 65.

Intermittent Fever—Phloridrine.—Phloridrine is a medicine very highly spoken of by French practitioners as a useful adjunct to our cinchona preparations. It has been used for some years in Germany, Poland and France. It is extracted from the bark of the roots of the apple-tree and the wild cherry-tree, and is thus prepared : the bark of recent roots is boiled with water sufficient to cover them, for half an hour. This is poured off, and the same quantity is again used ; these two fluids are mixed together, and at the end of six hours deposit the phloridrine in the form of a deep-red velvety-looking matter.

M. Lebaudy, the editor of the "Journal des Connaissances Médico-Chirurgicales," says, "its efficacy is so decided that we cannot hesitate to class it with the most powerful febrifuges ; and it has this advantage over quinine, that it never induces gastralgia."

Part v., p. 87.

Sulphate of Bebeerine.—The bebeeru bark of British Guiana has been brought into notice as a substitute for quinine, by Dr. MacLagan and Dr. Rodie, who consider it to possess antiperiodic powers of considerable value. They have given it with success in ague, and the more serious cases of intermittent :

The bark and seeds of the plant yield two alkaline bodies, to which Dr. MacLagan has applied the terms *bebeerine* and *sinscerine*, from the Indian and Dutch names of the tree. Dr. Rodie has found the sulphate of bebeerine equally as successful as quinine itself, and, moreover, it is not attended with any irritation of the stomach, nor that alarming symptom of deafness and determination to the head, which so frequently follow large doses of quinine. The sulphate of bebeerine may be given in doses of ten or twelve

grains during each intermission, and it will be found that from a scruple to half a drachm or a drachm will generally be sufficient for a common inter-mittent.

Part viii., p. 24.

Yellow Bark.—Mr. Battley has for many years prepared a concentrated cold infusion of yellow bark, which he terms *liquor cinchonæ cordifolia*, and which, from personal experience, we can recommend as an excellent medicine. There are probably few individuals more experienced in these matters than Mr. Battley, and his opinion is in a great measure correct when he says "that the value of yellow bark has been too generally and too exclusively attributed to the quinine it contains"—and he goes on to state, "it has ever been an object with me to preserve unbroken that natural union by which several active principles are often combined in the same plant:" and from long experience he is convinced that no method of extracting the virtues of plants is equal to maceration in cold distilled water, which takes up from plants, with few exceptions, all their medicinal properties.

By this process he obtains, from twenty-eight pounds of good yellow bark, from five to six pounds of concentrated liquor, containing about ten ounces of quinine. It is only necessary to sub-pulverize bark and macerate it from four to six hours in twice its weight of cold distilled water, repeating the process twice, or at most, thrice, and to concentrate the infusions over a water bath to sp. gr. 1200, and allow the liquor to deposit the gummy matter and so much of the tannin as it cannot retain in solution.

Part viii., p. 44.

Intermittent Fever.—If, says Dr. Williams, you see much of intermittent fever in malarious districts, you will find that there are a great many cases that are neither quotidian, tertian, nor quartan, nor do they belong to any type at all. There are irregular paroxysms occurring every now and then, in one case without any cause; in another, arising from an obvious cause. The malarious poison alone is often not enough to produce the fit; but some additional cause, such as exposure to cold, error in diet, or something else, disturbs the system, and brings about the fit. Thus ague will become developed as the result of an accident. A person falls down and sprains a joint, breaks a limb, or becomes bruised, and the seeds of ague which were in the system before, now manifest themselves. Those whose most of ague are more fully aware of this, than you would be if you took your account of intermittent fever only from what you read in books. Malarious influence certainly operates on the body by greatly disturbing the circulation. How it produces that effect it might be difficult to explain, and we have not time to stop and investigate it; but this is a fact, that it causes great internal congestion, and a corresponding amount of intro-pulsion of blood from the surface. The surface becomes pallid, exsanguineous, while the blood accumulates in the internal organs. This seems to be the immediate, the essential effect of malarious poison, and it occurs whether there be a fit of ague or not. A fit of ague is a reaction against this irregularity of circulation.

The paroxysm of intermittent fever is a sort of struggle between the protective power of the system and the poison; and hence we can easily perceive why, when the paroxysm of ague is imperfect, the effects of the disease on the system are more severe, and why the body actually suffers

more under these circumstances, than it does where the fit is complete and vigorous.

The same observation is applicable to the case in which the cold fit is long, and the hot and sweating stages are short and imperfect. In these cases, although there is reaction, it does not overcome the disturbance of the system, which the malarious poison has produced, and therefore leaves it accumulating in it.

The ascertained effect of malarious poison on the system is, to cause a great amount of congestion of the internal organs. Blood accumulates in them, and so long as it accumulates it does not circulate; it does not undergo these changes which we know to be necessary for its reparation, and its very existence in a state of integrity. Blood, whether accumulated in a part, or circulating, is perpetually prone to chemical change. In the worst forms of intermittent fever, the effect is aggravated by the great intensity of malarious poison, which rapidly overcomes the vital powers of the system. What do we find in hot climates? Intermittent fevers assume a malignant form; they become typhoid nearly in their commencement—that is, accompanied by an enormous amount of congestion in the internal organs, and by a palpable change in the condition of the blood in them. The spleen, in the case of the Walcheren fever, was represented by writers as resembling a bag of tar, the blood being as black as pitch. A similar account is given of pernicious intermittents of Italy, in which the spleen is so gorged with blood that it sometimes becomes ruptured, and gives exit to a mass of corruption. The blood not only stagnates, but accumulates in an altered state, prone to decomposition. In this country, we have no causes operating in such intensity; the effects, therefore, fall short of this; but even here the blood so accumulated must necessarily be disordered. Many facts seem to prove that wherever there is an accumulation of blood in an organ, that blood does not undergo the usual process of circulation and purification; there noxious matter is engendered; the blood is, as it were, destroyed for the purpose of the economy; and if, under a change of circumstance, it is restored to the circulation, instead of being available for the circulation, it has to be removed as excrementitious matter unfit for the body. This suggests to us that in the treatment of diseases arising from a malarious influence, we have not only to cure the paroxysms by anti-periodic medicines, as they are called—by tonics, which seem to operate by preventing or removing the internal congestions—but we have likewise, as a leading indication—an indication which prevails the more the longer the disease has lasted, and the more visceral disturbance it has produced—to promote the elimination of the injured blood from the system. A great deal of the blood is bad, and never can circulate again comfortably in the vessels of the system; and to rid them of this effete matter, you must keep the drains free; you must increase the excretions at the same time that you are giving anti-periodic medicines. Lastly, you are to attempt to fulfill a third indication—that is, to restore what has been lost, by promoting the formation of good blood, which is to be effected by general tonics, particularly iron and good living—nourishing diet—as much as the digestive organs can bear.

Part xii., p. 31.

Observations on Ague.—A sailor, 18 years of age, came under Dr. Chambers' care at the Essex and Colchester Hospital, in November last,

affected with ague. The attack was of fifteen months' standing, was a tertian, but now had become quartan; he had been subjected to a variety of treatment, and said he could not bear quinine. Countenance anæmic; pulse 80; bowels costive; urine scanty; tongue furred; feet and ankles swell toward night; action of heart regular but labored; a congested state of all the viscera. These were the leading symptoms when he applied at the hospital. He was ordered to be bled immediately, and ten grains of quinine in a draught. Calomel, ext. of colocynth, and ext. of hyoscyamus were given every other night—and small doses of quinine three times daily. This treatment was continued for three weeks, and he has never had an attack of ague since. Dr. Chambers makes the following observations:

There was congestion, and consequent inactivity, of all the excretory and secretory organs; the blood was increased in quantity, but deteriorated in quality; there existed that state which Dr. Turnbull, in his lectures in the "Lancet," alludes to as anæmic plethora. There was mental and physical depression, in consequence of the long duration of the disease and its resistance to treatment. It was evident, then, that relief to the congestion was of primary importance; yet his feeble pulse, and his weak and pallid appearance, almost forbade having recourse to depletion; however, all doubt as to its propriety was quickly removed on referring to the heart, from the labored action of which it was evident that the feebleness of the pulse was merely the feebleness of oppression. Accordingly he was bled to ten ounces, and took ten grains of quinine before he left the hospital, and in addition I directed him to take a glass of gin and water, as he had a long journey to go, and the day was cold. The quinine was continued for three weeks, and during the whole period it did not produce the least unpleasant effect. It is, then, I think, apparent from the result, that the obstinacy of the disease, and the disagreement of the quinine, arose from non-attention to the coexistent visceral congestion.

Part xiii., p. 26.

Quinine in Periodical Diseases.—It is the sedative influences of quinine which cures an intermittent—therefore give a single decided dose, grs. xv.–xx., eighteen hours before its operation is desired; this will probably suffice for a pure intermittent. In a more congestive form of fever give 30 to 50 grs. When periodicity exists in a disease, give quinine, regardless of any existing inflammation.

Dr. Holmes, army surgeon, speaking of the efficacy of this remedy in the management of the malarious diseases of Florida, says:

I had an attack of congestive fever in December, 1841, a month after I came to the territory, with which I lingered for three weeks on the verge of the grave, at a distant post, and with no better medical assistance and advice than I could give myself. A stranger to the powers of quinine, I took it in grain doses, for a fever which I am in the habit of checking now in a day's time, by drachms, instead of grains, of this great agent. The congestion was on the brain, the pain so intolerable that the slightest motion could scarcely be borne; the intolerance of light and sound perfectly tormenting to the senses; the muscular system weak and languid; the eyes and cheeks cadaverous, and after a few days deeply sunken in. How often, subsequently, with all these symptoms at their height, have I given forty to fifty grains of quinine—have seen its effects on the brain,

aggravating for the time every symptom, or occasionally but slightly affecting the disease for some hours; and then, as the sedative effects came on, have beheld the patient drop into a composed sleep, his skin become moist and natural (no better diaphoretic than this agent, in many states of the system), and awake in six or eight hours, a man really free from disease; this may appear all exaggerated to those who have never seen congestion, or its treatment in this manner, but to any one who has, I appeal whether this description is not unvarnished truth.

Part xv., p. 30.

Quinine in Miasmatic Fevers—Intermittent.—Give 15 or 20 grains of quinine at once. It may be given in any stage of the disease, and requires no previous treatment, except a brisk purgative of compound jalap powder when there is great torpor of the bowels. If there is diarrhœa and irritable stomach, combine with the quinine a little sulphate of morphia; if the skin is very dry, and the thirst urgent, add a little sp. æth. nit.

Part xvi., p. 43.

Treatment of Intermittent Fever by Tartar Emetic.—Begin by purging freely with calomel and jalap, followed by senna and salts. Then, after the first paroxysm of the fever has clearly declared itself, give tartarized antimony in such doses as to prostrate the patient's strength, and keep up its effects for some time during all stages of the fever, without producing any violent effects on the stomach or bowels. The dose required for this purpose, in an adult male, will usually be one-tenth of a grain repeated every hour; but the quantity must be changed, and the interval lengthened or shortened according to circumstances. In cases complicated with congestion or inflammation of the internal viscera, local and general bleeding must be employed to aid the effects of the antimony. And in protracted cases, where the system appears to become habituated to the remedy, the tartar emetic should be discontinued, and twelve or fifteen ounces of blood quickly abstracted by cupping from the epigastric and hypochondriac regions; five grains each of calomel, and James's or antimonial powder should be given at bedtime, and compound jalap powder in the morning; and after the operation of the purgative, if a fresh paroxysm of the fever distinctly declares itself, the tartar emetic should be resumed.

Part xx., p. 21.

Ague treated by Terebinthinate Liniment along the Spine.—M. Aran mentions that he has succeeded in staying ague fits by the use of the following liniment: essential oil of turpentine, three ounces and a half; chloroform, about one drachm. The patient was a young man with whom quinine had failed, and the above liniment was used about two hours before the fit. The latter appeared at the usual hour, but was somewhat shorter than the preceding; the second was kept off for four hours; the third failed to appear altogether, and the patient was soon quite well, experiencing only for a few days a certain amount of discomfort at the accustomed hour of the fits.

Part xxvi., p. 26.

Ague.—In cases of the quotidian type, small doses of strychnia, one-twenty-fifth to one-fiftieth of a grain, have proved very valuable in several cases of laborers who were much exposed at night; and this without the use of any other medicine, excepting a dose of calomel and opium, followed by a purge of compound jalap powder to commence the treatment of the case.

Part xxix., p. 54.

Intermittent Fever.—Give two ounces of the infusion of olive leaves three times a day; made by macerating two ounces of the fresh leaves in a pint of water.

Part xxxii., p. 31.

Cressote in Intermittent Fever.—Zwetkoff was induced to make a trial of cressote in intermittent fever, (1) on account of its specific influence over the abdominal ganglia of nerves, especially the solar plexus, and (2) on account of its good effects in periodical vomiting. He gave it in doses of from nine to fifteen drops, three times per day, in mucilage.

Part xxxii., p. 31.

Intermittents.—*Vide Selections from Favorite Prescriptions, Art. "Medicines."*

Treatment of Ague by Iodide of Potassium.—In cases of long standing, which resist the usual method of treatment, the following has been remarkably successful: R Potass. iodid. ʒiiss.; aquæ menth. pip. ʒiij. M. sum. ʒj. 4ta hora.

Part xxxiii., p. 34.

Intermittent Fevers—Febrifuge Properties of Apiol.—In the treatment of these diseases apiol possesses all the advantages of the arsenical compounds without their inconveniences. Though inferior to quinine when the object is to cut short a dangerous paroxysm, yet it may be administered with the same advantage in all cases where it is not of much importance to put a stop to the paroxysms a day earlier or a day later, and is perfectly safe in administration.

Part xxxv., p. 33.

Ague.—The injection of disulphate of quinine diminishes the quantity of uric acid in the urine. In ague there is a considerable increase of uric acid in the urine. It is possible that further observation on this point may throw much light on the nature of this disease.

Part xxxvi., p. 272.

Ague.—In old inveterate cases of ague, which have resisted quinine, M. Barbaste recommends the trial of iodine. Give about ten drops of the tincture to a dose, three times a day, in a bitter infusion; in many cases the promptness of its results have been surprising. Dr. Manfredonia, of Naples, recommends it to be used as the iodide of quinine in doses of from one to two drachms per diem.

Part xxxviii., p. 31.

Ague.—Quinine not only acts specifically in curing ague when present, but prevents the disease attacking the healthy man when in malarious districts. For this effect, give four grains of quinine, either alone or in one ounce of wine, twice a day, while the patient is exposed to malarious poisons, and continue the medicine for fourteen days after he has left the district. This is necessary, as the poison sometimes lingers in the system, and does not show itself for that period.

Part xxxix., p. 34.

TYPHOID FEVER.

Boudin, physician to the Military Hospital at Marseilles, treated fifty cases of typhoid fever (dothineritis), in most of which severe diarrhoea was the prominent feature, with the nitrate of silver, thus: When the lower portion of the intestinal tract was presumed to be the seat of ulceration, enemata, containing from one to three grains, dissolved in distilled water, were administered. In most cases one enema

sufficed, the symptoms undergoing speedy amelioration. In other cases, the remedy was given by the mouth in half-grain doses every half-hour, formed into pills with gum tragacanth, or starch, until from two to four grains were thus taken. In some instances these two modes of treatment were combined; the results were, that only two of the fifty cases succumbed.

Part xvi., p. 156.

To Distinguish Typhoid Rash from Flea-Bites.—In addition to the "central punctum," which has been described by Dr. Lalor as a useful diagnostic in determining whether the maculæ were those of flea-bites or of fever, I have found that if the shirts of the patients presented the appearance of blood dots, it was conclusive that the "maculæ" were caused by fleas. The reason of this is obvious, and a knowledge of the fact has often determined the nature of the eruption where the puncta could not be found.

Part xx., p. 24.

Typhoid.—The great secret of success in administering support to patients in this disease is to give a small quantity very frequently, and also not to give a variety of food. Give your stimulants early. The best are brandy or port wine, but give them separately; the stomach does not easily digest two kinds of stimulants. Give them also in small quantities and often. Chloric ether is a good medicinal stimulant. If the pulse strikes the finger in a "vacillating" manner, it is a good sign for stimulants. The strength of the heart's action is also a good sign—the second sound especially is a good indication. If diarrhœa be present, we must check it by the use of such astringents as contain tannin, as the infusion or tincture of rhatany, catechu, matico, logwood, or enemata containing small quantities of laudanum. Counter-irritation is also useful. If there is hemorrhage, give five minims of turpentine, and repeat it every three or four hours. Apply it also externally to the abdomen.

Part xxv., p. 30.

Typhoid Fever.—Typhoid is known by its comparatively non-contagious nature, by the less development of cerebral symptoms, by the less depression, by the scattered rose-colored rash not persistent, constantly renewed, disappearing temporarily on pressure, and by the existence of disease of Peyer's glands, with diarrhœa.

In typhoid fever the symptoms are by no means always so well-marked as in typhus, and indeed the early stages of this disease are recognized with difficulty, and the malady steals on in a most insidious manner. In other cases, however, the symptoms of fever are sufficiently evident: there are the hot head, the greater or less delirium, the thirst, the full and rapid pulse. In this fever there is less tendency to delirium than in typhus, the progress of the disease is not so rapid, the danger from collapse not so imminent, the abdominal symptoms much more evident. In the early days of this disease, the same treatment may be adopted as is recommended in typhus; the constipation, which is often a marked symptom, is to be overcome by small doses of castor-oil, and a mixture may be given containing solution of acetate of ammonia and camphor mixture. It must be particularly remembered that, in this disease, there are inflammation and ulceration of Peyer's glands, and that the external indications of this affection are to be found in the rose-colored spots scattered over the chest and abdomen. Our attention must, therefore, be especially directed to the detection and repression of abdominal disease. The abdomen is often hot and painful on

pressure, and there is sometimes obstinate constipation, and frequently diarrhoea; the latter symptom being often severe and generally very alarming. In combating these abdominal symptoms, a cautious employment of depletion and the use of alteratives will generally be found of great service. Notwithstanding the danger of blood-letting, it will often be advantageous to apply some leeches over the abdomen, when there are great heat and pain over that region; but it must be especially noted, that this measure is far better borne in private practice, or in establishments for the general treatment of disease, than in fever hospitals, where depletion is attended with danger. Besides the application of leeches, great comfort is afforded to the patient by placing a large warm poultice over the whole abdomen, and various forms of counter-irritation are often attended with beneficial effects, the principal of them being the use of blisters, or the acetum cathartidis, and epithems of warm turpentine. The internal remedies to be employed, for the purpose of controlling the abdominal disease, are small and repeated doses of mercury; again advertent to the fact, that this mineral must be used with great caution, and is less available in hospital than in private practice. The administration of two or three grains of hydrargyrum c. cretâ, with as many of the pulvis ipecacuanhæ compositus, every six hours, is a useful remedy for checking the inflammation of the intestinal glands and regulating the secretions. But it often happens that diarrhoea, which is a concomitant of this disease, sets in with great severity, and by its drain upon the system, threatens to carry away the patient. Under these circumstances, the chalk mixture will often be found efficacious, and tincture of catechu or of kino, with a few drops of tincture of opium, may be added, or the pulvis kino compositus, or the pulvis cretæ compositus c. opio, may be given. But perhaps the most efficient remedy in this state of the disease is the acetate of lead, and it may either be given internally in grain doses, or (what is a very valuable mode of administration) may be injected into the rectum as an enema, with solution of starch and some tincture of opium. By this proceeding, which is very frequently adopted at the Fever Hospital, the most serious cases of diarrhoea are often relieved, and the lives of the patients are saved.

Part xxxiii., p. 20.

Quinine in Bilious Typhoid.—Quinine is most useful in the bilious form of typhoid, when it displays a remittent character, or a tendency to relapse. It is also very valuable where the fever, although not very intense, is extremely prolonged, without any material change; it may then be given, in doses of three to five grains, three times a day. When given in large doses, it may produce cinchonism. In two cases, by Dr. Robertson, it produced coma; in other cases it has been found to cause violent headache and increase the tendency to coma, and hence it calms the watchfulness and delirium of fever.

Part xxxiii., p. 22.

Typhoid Fever.—In these cases, perhaps one of the most successful plans of treatment is the administration of wine and quinine. At first the quinine should be given in large doses of ten grains every two hours. This, in a case treated at St. George's Hospital, caused a very striking change—the pulse came down, the skin became cool and moist, and the diarrhoea ceased. Should this effect ensue, the quinine should be given in smaller doses, as of two grains three times a day.

Part xxxvii., p. 19.

TYPHUS.

Hydriodate of Potass.—Dr. Morrison says: I think all parties will agree that derangement of the secreting and excreting functions takes place, as well as an alteration in the vital properties of the blood, in the course of every ordinary case of typhus fever. The dry, glazed, brown, or black tongue—the dark sordes about the lips and teeth—the fetid and dark-colored evacuations from the bowels and kidneys—the dryness of the surface of the body—together with the dark color, and deficient coagulating power of the blood, and the great liability to livid petechiæ and vibices, etc., will, I think, fully prove that position. In fact, I want to make it appear, that at a certain period of every regular case of typhus, the body is laboring under a condition, which is probably best expressed by the word cachectic. Now, if this be conceded, it will, I have no doubt, greatly assist me in procuring for the hydriodate of potass a favorable introduction.

Its effects are now very well known to be almost miraculous in many cachectic diseases; and I believe I might almost hazard the appellation of acute cachexy to low, idiopathic typhus.

All the secretions seem greatly improved by it—the tongue is greatly and speedily improved by it—the whole frame seems to recover vigor from its use. Whether its primary action is on the blood, I will not venture to say; but I cannot suppose that the benefit which is derived from its exhibition arises solely from its supplying saline particles to that fluid.

The dose which I have been in the habit of administering is three grains every four or five hours, dissolved in a little water. Of course it may be given with wine, camphor, etc.

Dr. Stevens says that the blood is deficient in its saline ingredients, after a certain period has arrived, in cases of typhus fever; and that small and repeated doses of neutral salts are admirably calculated to remedy this deficiency, and by this means to cure the disease.

[Dr. Stevens' saline powder, composed of eight grains of chlorate of potass, twenty grains of muriate of soda, and thirty grains of bicarbonate of soda, will be found to produce somewhat similar effects to those described by Dr. Morrison as resulting from hydriodate of potass. In those cases described as "marked by a dry, parched, brown or black tongue—by dark sordes on the teeth and gums, etc.," we have lately found the effects of Dr. Stevens' saline treatment to be very surprising. In almost every case we have found the dark appearances in the mouth to be altered in an incredibly short time. We have given the above dose to adults every two or three hours, in the middle and last stages of the disease for some time; and almost in every case the tongue, lips, etc., became moist and florid, and recovery rapidly followed; except where some other disease existed.]

Part ii., p. 66.

Diacetate of Lead.—A young gentleman laboring under typhus fever was attacked with diarrhœa and discharge of blood from the bowels, the diacetate in the full dose was administered, and both hemorrhage and diarrhœa were restrained after two doses. He recovered. *Part v., p. 75.*

Typhus—Calomel and Cold Affusion.—Typhus is the typification of

disease of membranous tissues, beginning with the pituitous membranes; the serous and mucous linings of the large cavities; the mucous linings of the alimentary, gastric, and intestinal canals; the epithelium; and, above all, the skin—the extensive covering of the surface of the body: all being more or less implicated, directly or indirectly, in the progress of typhus. The great extent of membranous tissues, beyond all others, in the animal organization, their important and almost universal function, and their singular sympathy in health, disorder, and disease, sufficiently explain the inveteracy of the character of typhus. If it be assumed that the great mucous surfaces, intercluding the skin, so universally expanded over the external and internal parts of the animal structure, in and through which transpiration, exhalation, absorption, secretion, and sensation are so wonderfully performed, are the seats of disease in typhus, the remedial agency of calomel and cold affusion is not difficult of solution.

When the disease advances, the vital powers become nearly subdued, and neither mild nor temporizing remedies will rouse the slumbering functions; an impulse must be speedily obtained, directly, through the vascular system, and indirectly, over the ganglionic and cerebral functions; this is the best obtained by large doses of calomel, aided and succeeded by cold affusion.

Calomel, in large doses, acts proximately as a sedative, without losing any of its well-known valuable qualities as an alterative, upon the absorbent and glandular structures. The first good it produces, is sound, calm, undisturbed sleep, to which the patient has been long a stranger, during which the ganglionic, absorbent, and glandular systems are silently invaded by its alterative agency; the intestines become filled with secretions, ready to be removed by any mild cathartic (e. g. small doses of neutral salts), exhibited periodically and regularly, to make them patent: the dose of calomel should be renewed every night (without any other medicine, only the neutral salts in solution, with infusion of senna and the mindererus' spirit), and repeated till the functions approach their normal state. The cold affusions over the naked surface of the body are to be practised daily, by throwing over it, while in a sitting posture, a bucketful of cold water, during the acme of the febrile paroxysm.

The breathing becomes more free, and the stertor, so frequently present, gradually subsides; the pulse, from having been oppressed and feeble, yet quick and wiry, becomes compressible, free, and bounding, increased in volume, and diminished in frequency; the peculiar expression of countenance now collapsed, anxious, and cadaverous, with a cold, lead-like, lacklustre expression, the eye injected, and the sardonic grin and incoherent mutter quivering on the lip, also subside; the subsultus tendinum and picking of the sheets also cease, and a profuse sweat pervades the surface, the skin becoming relaxed, soft, and elastic, and its temperature gradually restored to a uniform, healthful, and natural condition. *Part XI., p. 91.*

Typhus—Treatment of.—Dr. Davidson gives the following summary:

1. That as typhus is a disease which cannot be checked *in limine*, and is often tedious in its progress, causing great emaciation and exhaustion, we ought not, without very strong and special reasons, to employ any measures which may vitally lessen the powers of life, such as bleeding, vomiting, and excessive sweating or purging.

2. The ordinary measures may be the following: Place the patient in a

large, well-ventilated apartment, on a mattress with few bed-clothes, let the head be shaved, and kept cool with an evaporating lotion, give a gentle purgative every second or third day, let the skin be bathed once or twice a day with tepid water, and this may be accompanied with small doses of tartrate of antimony, antimonial powder, or ipecacuanha. His drink should be light, cooling, and slightly diuretic, and his diet nutritive, but light, and little liable to acescency. When there is a tendency to congestion in any organ, a little calomel or hydrargyrum c. cretâ may be combined with the purgative, or calomel, with a small portion of opium, may be given every six or eight hours. The application of two or three leeches to the temples or nostrils is often useful in congestion of the brain, and also when there is intense headache, which is often the forerunner of delirium. Blisters are also often advantageous in such cases. Derangements of particular functions, or symptoms arising from idiosyncrasy of constitution, sometimes occur, and must be treated accordingly.

3. Mercury in small doses is frequently used in promoting several of the secretions, and in relieving the congestions of internal organs.

4. Opium is injurious in a large proportion of cases, from its tendency to cause congestion of the head; but when diarrhœa is a symptom, it ought to be administered with a view to check the exhausting evacuations.

5. Wines and other alcoholic liquors, as they contain both stimulant and alimentary elements, are the most to be relied on for supporting the strength, and are the least injurious. The pulse, taken along with the general symptoms of exhaustion, ought to be the rule for its exhibition, both as to time and quantity.

6. Ammonia, camphor, quinine, and other similar tonics, are not to be depended on in bad cases; and, when exhibited along with wine, frequently cause the patient to refuse both.

7. When the disease is complicated with local affections in the head, chest, or abdomen, these must be treated on the same general principles as the idiopathic disease, which they represent; with this important modification, that evacuations of all kinds must be employed more sparingly, and with much caution; and that even in these cases, if there be much prostration of strength and a very weak pulse, wine must be administered, although more moderately than in the simple disease.

Part xi., p. 93.

Typhus Fever.—Let us, says Dr. Corrigan, as we stand at the bed-side of a patient in typhus fever, recollect that in looking at the extent of the maculæ, or for the presence of petecchiæ, or in examining the distended vessels of the conjunctivæ, we are looking not at a mere local derangement, but that we are studying in these external indications the state generally of the circulatory system as a whole. In this view we can understand why we attach importance to the color of the maculæ, why we look upon rose-colored maculæ as a good sign, and dark-colored maculæ as indications of danger.

The dark-colored maculæ are indications of danger, because their color is owing, we know, to an enfeebled circulation. The feebler it is, the darker will be the color of the maculæ; while the more energetic is the capillary circulation, the more vivid will be the color of the blood passing through it. In this view we can also find an explanation of the fact, that

a patient may have an intellect not disturbed, may have a cool skin, a clean tongue, a soft abdomen, a pulse not above 70 or 80, with volition and sensibility perfect—and yet die of typhus fever in seven or eight days. Of what does the patient die in such a case? He dies of this lesion of the function of circulation. In most cases this lesion is not the only one present, although often the most prominent; but I wish to fix attention on it, as it leads to a practical rule for the administration of one of our most important agents in the treatment of fever, viz., wine. You are too often bewildered in the directions as to its employment. You are told to beware of delirium in its administration, and yet, again, you read that delirium subsides under its use. You read instructions either to refrain from its use when the tongue is dry, or to judge of the propriety of continuing its exhibition by its effects on the tongue. Instead of attempting to reconcile all the contradictory statements, ask yourself what is it that, as you consider a patient's state, would lead you to think of its employment? Is it not the state of the function of circulation, taken as a whole, indexed to you by the pulse, on the one hand, and by the state of the capillary system of circulation in the skin, on the other?

It is for this you give it. It is the specific remedy directed to remedy the general lesion of the function of circulation, and hence in its administration you may give it, and you must give it, whether there is or there is not delirium; for delirium may be present or absent in a case requiring its exhibition for the function of circulation. You should give it indifferently, whether the tongue is moist or dry. You may give it with a soft abdomen, or with an abdomen tympanitic. You are giving wine, recollect, as the specific remedy for the lesion of the function of circulation (remember always comprising under this the capillary and cardiac circulation); and by the change in the circulation, and by this alone, are you to judge of the necessity of continuing, decreasing, or augmenting its dose. Under its exhibition, you will see the vessels of the conjunctiva contract, the maculae become rose-colored, and the patches of skin in the face, and on dependent portions of the body, lose their dark livid hue.

In some cases, four to six ounces are enough for a few days, in continuance, to restore the circulation to sufficient tone; in other cases, it requires as much as one ounce of wine every hour, or 24 ounces in 24 hours; and even in addition to this, as much as eight ounces of brandy; and all this barely sufficient to preserve the circulation from sinking.

We must never abandon a case of fever as long as there is life. We must remember that the patient one day, in a state seemingly moribund, may on the next day, or within twenty-four hours, be out of danger. It will not unfrequently happen, that even the power of swallowing is lost for several hours; but even then we can stimulate the circulating system by injections; and in some cases the preservation of life has been owing to ether, given in the form of injection every two hours, in quantities of two drachms, until, under its stimulating effect, the circulation gained some vigor, and the power of swallowing returned.

With the same object of stimulating the capillary circulation, blisters are applied in succession over the surface. The nurse is supplied with four or six small blisters; one after another is applied, with intervals of six hours between them, over chest, abdomen, thighs, and legs. They are thus applied, not as counter-irritants, not to act as derivatives on internal structural disease, but as stimulants to excite the capillary system. An

action produced in any part of it will be conveyed through the whole, and thus their action on the skin coincides with and assists the action of the internal stimulus of wine, ammonia, and brandy.

Part xiii., p. 30.

Nitrogen in Typhus Fever.—Mr. Grantham places great reliance on what he calls diluting the system of fever patients with nitrogenized matters; he has witnessed its beneficial effects.

He proposes to dilute the system with nitrogenized matters, from the fact of ammonia or nitrogen being deficient in the system in typhus. After giving a full dose of castor oil, give 10 grains of carbonate of ammonia every six hours till the return of cerebral action, and then give aperients and quinine. Good beef-tea, well seasoned with spices and salt. Plenty of water and diluents. Port wine when the pulse will bear it.

Part xiii., p. 30.

Typhus.—According to Dr. Richter, the great indication of treatment is to produce fibrin, i. e., to separate the nucleus (the true representative of fibrin) from the envelope of each blood corpuscle. By giving chlorine (muriatic acid) and ammonia, alternately, this is accomplished. The envelope is decomposed, the nucleus remains undissolved.

Part xiii., p. 32.

Treatment of Typhus Fever.—[Dr. Corrigan proceeds to the analysis of this disease in reference to its several functional lesions, and commences with those of the cerebro-spinal system, or that system which connects man with surrounding objects. We find first the absence of sleep, which is essentially not a mere symptom, but a part of the disease; for if the patient do not obtain sleep, he must die; as in delirium tremens, in which death may occur solely for want of his natural rest, there being no organic disease to account for his death. If watchfulness continue for a few successive nights, delirium and subsequent coma are the invariable consequences, and these supervening, constitute a very serious aggravation of the disease.]

Remember, as I have so often said, that insomnia is not a symptom but a part of the disease; and that if sleep be not procured, delirium, and then coma, and most probably death, in the end, must ensue. If we now pass from the consideration of light, air, etc., to the question of medical treatment, the first thing to be done will be to have the head shaved; and this of itself is generally sufficient; the application of intense cold is often a serious error; it very often obviates the object you have in view—that of procuring sleep. After this, if you ascertain that the patient has still had no sleep, you will not be doing wrong, I am sure, if you apply four or six leeches to the temples. This is a remedy upon which, for my own part, I place more reliance than almost any other.

A state of general debility, requiring the exhibition of wine, need by no means prevent your employing this remedy; for while you give wine with a view to the tone of the heart, larger vessels and capillaries, you are perfectly justified in relieving the distended capillaries of the head by the local abstraction of a small quantity of blood; just as in some forms of ophthalmia, it is often the best practice to employ local bleeding to relieve the distended capillaries, and tonics to give them and the general

circulation tone. You need have no fear of taking this small quantity of blood from the capillaries, for they very soon accommodate themselves to the trifling loss sustained: there is not the risk that might attend even a small abstraction of blood, taken from a vein.

The application of cold to the head is another useful means of obtaining the same object, but it is one which is too often carried to excess. A bladder containing pounded ice is placed on the head, but as it is very disengaged, the ice lies heavily upon the top or back part of the head, and sometimes causes even sloughing of the integuments. Instead of this, take a single fold of linen dipped in cold lotion; lay it on the head, and it will generally answer all purposes.

All these matters may seem at first trifles, upon which I may appear to dwell unnecessarily; but if we recollect that this want of sleep is a symptom, but part of fever, too much attention can hardly be paid to minute details.

The question might suggest itself to you here, why, as opium is given in delirium tremens, and in such like diseases, why should it not be administered here, where obtaining sleep is a matter of such paramount importance? Why not give it for the lesion of the cerebro-spinal function which we are now considering? Because, if opium be given in fever, and if it do not procure sleep, it does mischief of another kind. It acts injuriously upon the nutritive function, including that of secretion and excretion. In analyzing the disease before us, we may derive great assistance from comparing some of its lesions in function with symptoms in other diseases. For instance, in delirium tremens, while the tongue is dry, the gums secrete their natural quantity of mucus, and the secretion of sweat is abundant, you may continue to give opium for the purpose of procuring sleep; but suppose, in the course of the treatment, the tongue becomes dry and brown in the centre, the urine high-colored and scanty, the skin slightly wound or cut, if there happened to be one on any part of the body, become dry and everts its edges—in other words, as the nutritive function is passing into a deranged state, then the opium is acting as a poison upon the system, and the continuance of its administration would be deleterious. The same considerations are to guide you in the exhibition of opium in fever. Hyoscyamus, as it does not interfere with these functions, is more advisable.

At the approach of coma, you must not, unless there be strong vascular action about the head, persist in bleeding, but have recourse to bloodletting as a means of rousing the patient from his state of torpor. I have been in the habit of having the blister cut into strips of an inch in width, and laid across the head in a direction from ear to ear, so that no part of the head is uncovered, and that the strips lie close to the skin. Counterirritation may also be produced in a few hours by means of croton oil and hydr. mixed. There is a state of the breathing preceding the approach of coma, which you might confound with that of bronchitis, but the danger is very different; it becomes exceedingly rapid and laborious, amounting to forty or fifty respirations in a minute, but the respiratory murmur is audible in the tubes; there is no mechanical obstruction to them; this is what is called cerebral respiration; while in that of bronchitis or catarrh the tubes are filled with mucus, and a mechanical obstruction is thus offered to respiration, from which very few cases recover. You observe, besides, the characteristic lividity of the countenance.

while in the cerebral breathing the countenance is pale, natural, or high-colored. The cerebral breathing is a breathing of debility, very similar to that you hear in a person after very violent exercise. In the case of P—, the breathing was very rapid and laborious, but still the face was very pale. Here the debility was very great, requiring enormous quantities of wine, so much as thirty ounces of which were given in the day.

There is one point upon which I cannot speak too strongly; I allude to the condition of the bladder. You should look with the strictest attention to the state of this organ. The nurse may tell you the patient passes water freely—in fact, that it flows from him in the bed; but you are aware, from what occurs in the surgical wards in injuries of the head, that this is not to be trusted to; at all events, make it a rule to examine closely, and there is no harm in the introduction of a catheter. In the female the bladder will distend to a volume capable of containing at least three quarts, while all the time the urine is dribbling away in the sheets. In speaking of leeching and other remedies, you observe that I have said nothing of what is to be done on this day or that of fever. Get the idea of days out of your head; fever is not like a case of peritonitis or pneumonia, in which the stage of congestion and the stage of deposition of lymph, etc., are to be gone through in order.

Mark well the crisis, as shown by the secretion of urate of ammonia, or urea, or by long sleep and perspiration; *where the latter is too profuse, about the sixteenth or seventeenth day, there is much risk.* In common inflammatory fever, it is advantageous about the second or third day, but in typhus it depresses the system to extreme exhaustion.

It is very hard to say why it is so, but you must by all means avoid anything that would encourage perspiration. *Part xiv., p. 25.*

Diarrhœa Succeeding Typhus.—After the fever has abated, the diarrhœa sometimes continues, and the patient gets no strength. Now, in such cases, small doses of sulphate of quinine, with the sixth of a grain of sulphate of copper, dissolved in any suitable vehicle, to which a few minims of dilute sulphuric acid has been added, plain water—aqua fontis is the best—may be given with advantage. If the stomach will bear the remedy, it will act well. Acetate of lead, combined with opium or acetate of morphia, in pills made up with breadcrumb, is also a useful sedative in these cases of chronic diarrhœa; these remedies may also be used in the form of an enema. *Part xiv., p. 32.*

Use of Preparations of Iron in Fever.—Iron in fever may be given in form of mist. ferri o., made with the sesquicarbonate of ammonia instead of carbonate of potash, in cases of urgent debility, as soon as gastric disturbance will admit, and where an adynamic condition of constitution and sinking of the vital power is threatened, which is evinced by a dull or dusky color of the eruption, and a cool state of skin. The iron may also be combined with valerian. If coma supervene, turpentine internally, or by enema, as recommended by Dr. Copland, is valuable. Symptoms of inflammatory fever contra-indicate the use of iron. *Part xiv., p. 40.*

Warm Hydropathic Treatment.—We have tried this method lately with considerable satisfaction in cases where the skin was hot and dry, and

perspiration was required; particularly in children. The following has been our simple apparatus: the flannel petticoat of the mother dipped in warm water, and, after being squeezed pretty well, put over the whole surface of the child, and tied gently under the chin; over this moist warm flannel wrap two, three, or four blankets, so as to prevent evaporation, or envelope the patient in oil silk; in about half an hour or an hour, the skin will be in a profuse perspiration, and the moist flannel may then be taken off and the surface kept warm with the dry blankets. We merely throw out this hint respecting the warm hydropathic treatment for the consideration of our readers, and have no doubt that it will be improved. It is in reality enveloping the body in a poultice made more completely than by the ordinary cold water system, and is much more grateful to the feelings of the patient.

Part xv., p. 31.

Senna with Matico, in Hemorrhage from the Bowels.—Dr. Watmough has used matico in cases of hemorrhage, but was much pleased about three months ago, with the benefit obtained from combining it with senna, in a case of typhus fever, where hemorrhage from the bowels took place.

Having previously attended to the state of the liver, etc., he immediately ordered matico and foliorum sennæ, utr. dr. ij., to be infused in a pint of boiling water, and a wineglassful to be taken frequently. Scybala mingled with blood soon passed the intestines, after which less blood flowed, and by continuing the above mixture in similar doses at various intervals for three or four days, during which time the alvine evacuations gradually improved, the patient soon got rid of this troublesome symptom.

Part xv., p. 120.

Typhus Fever—Complications.—Where a person who has asthma or chronic bronchitis gets typhus fever, the symptoms become extremely urgent, the countenance assumes a livid hue, the pulse becomes very quick, small and compressible, the patient appears in danger of being suffocated. The blood not being properly oxygenized in the lungs, the carbon exerts a poisonous influence on the whole system. In addition to the general treatment recommended, blister after blister must be applied to the chest, until the crisis is over. It is here, also, punch must be freely permitted, and that camphor and ammonia, combined with anodynes, will be given with good effect. The patient should, if possible, be mercurialized. When diarrhœa sets in toward the thirteenth or fifteenth day, it should not be interfered with; but when it is a complication in the commencement, the application of hot poultices to the abdomen, or in some instances the application of a blister will be found to answer, together with a liberal allowance of port wine, negus, and a small anodyne draught at night. When the liver is engaged, and the patient is jaundiced, blue pill will be required to be administered, and afterward the application of a blister to the hepatic region, which should be dressed with mercurial ointment until the gums are touched. A disagreeable and troublesome sequel often occurs after this complication; the patient will complain of want of sleep and acute pains in the joints. Dover's powder, given at night, and colicium draughts during the day, will soon remove the evil. It is not uncommon, after a severe attack of fever, for the patient to get œdema of the lower extremities; this is to be removed by putting the patient on a generous diet and administering diuretics, when it will soon disappear on the patient getting into condition.

With respect to the prognosis, *ceteris paribus*, persons of a bilious temperament are better able to get through the disease, next those of a sanguineous, whilst those of a nervous or scrofulous diathesis experience some difficulty in recovering. It will be found more males die of typhus fever than females. *Part xvi., p. 84.*

Typhus — Use of Stimulants. — [Dr. Wright, of Birmingham, well observes, that when stimulants are indicated in fever, we must not be deterred from their use by the existence of thirst, flushed cheeks, depraved secretions, etc. He says:]

You have seen, in my practice of last year, how a persevering use of due stimulation in typhoid fever will lessen the frequency, and at the same time increase the force of the pulse; dissipate the flush from the cheeks; moisten the mouth, and clean the tongue; dispose to sleep, and, by giving tone and energy to the system, improve those secretions that had become depraved from weakness. Even the suggestions of organic chemistry, valuable as they often are in the practical business of the bedside, are sometimes to be disregarded in the necessity that may exist for prosecuting any single and well-indicated plan of treatment. It might be argued, that when the urine is ammoniacal, the perspiration alkaline and foul like the breath, and there is a general tendency to putrescence, ammonia would be an unsuitable remedy. Yet you have several times seen all these morbid conditions corrected by this very medicine. I have no doubt that any other diffusible stimulant which, like ammonia, has often a prolonged action, and little affects the sensorial functions, would have answered as well; but I know of none that in all these particulars is equal to ammonia, and, therefore, give it the preference.

One of the best cases illustrative of the value of stimulant treatment which I saw during the prevalence of the typhoid fever of 1846, was in the person of a little boy, aged eleven years. He had been ill some days when I first saw him, and presented all the ordinary features of the fever. Mr. Elkington was treating him with bark, ammonia and nitric ether, which seemed to me to be so judicious a plan as to deserve a continuance. On the following day the boy was in much the same state as before, and we agreed to give his medicine a little more frequently, and also to allow him more wine. In spite of this, his vital powers continued to fail, and on the occasion of our next visit, the subsequent day, the nurse told us it was not necessary to go upstairs, as the little fellow was "all but dead." For several hours he had lain in the condition in which we found him, and the nurse had declined administering either wine or medicine, from his inability to swallow. He was cold all over; pupils dilated, and quite insensible; eyes open and covered with films; action of heart inappreciable over its site; pulse not sufficiently distinguishable at the wrist to say what kind of pulse it was; breathing hardly perceptible. There was no consciousness whatever of passing events, and nothing that we could say or do roused the poor creature: to sum his case up in a few words, he had every appearance of being close upon the point of death. Still, he was *not dead*; and, acting upon the belief that "whilst there is life there is hope" (in such cases as these a very advisable belief), we determined to not lose even the last chance, and therefore proceeded to give him wine. The first teaspoonful put into his mouth remained some seconds there, and then passed with a feeble gurgle down his throat. We followed

that dose by a similar one, and then another, and another, until half a glassful had been swallowed. We then let him rest for about a minute, at the end of which time his pulse had become perceptible at the wrist. This was the only sign of reaction, and trifling though it was, it was encouraging, inasmuch that it showed us that there was vitality enough left to *respond to stimulation*. We, therefore, ordered that he should have a large wine-glass (holding about an ounce and a half) of port given to him every other hour, and in the intervening hour a similar glass of strong beef-tea, containing two drachms of compound spirit of ammonia. One hour he had the wine, and the next hour the beef-tea and ammonia. The remedies were strong for so young a subject, but the case was desperate, and we did not choose to abandon him whilst there was even a "forlorn hope" left.

We visited our patient the next morning, about fourteen hours having elapsed, and we found him on the night-chair, sufficiently comfortable and conscious to greet us with a smile. In this short space of time his tongue had become moist, and had nearly lost its dark brown color; the sordes had completely disappeared from his teeth; in fact, without enumerating the items in proof, I may say he had become a living, intelligent creature! From this period there was only one uninterrupted and rapid progress to recovery.

Part xvi., p. 37.

Typhus—Antiphlogistic Treatment of.—[Dr. Kennedy gives the case of a young man laboring under an attack of typhus, which impressed on his mind the necessity of more active treatment in many of those cases which assume at first an inflammatory character, followed by the usual exhaustion, such cases as are more frequently found among the wealthy and middle classes. He relates his case as follows:]

The symptoms of the disease ran high; the skin was hot; the pulse 120, jerking; the tongue densely coated with a cream-colored fur; and the patient complained much of pains through his body, and more particularly of racking pain in the head. His eyes were suffused, and a good deal injected; and his manner altered from his usual state. It was thought advisable to bleed him from the arm, and $\xi xij.$ were taken. The coagulum was of a fair consistence, and presented on its surface a sisy buff. The symptoms were moderated by the bleeding, but as pain of the head still continued, some leeches were applied to the temples, and with marked relief. In this way matters went on till the seventh day, when petechiae appeared; few in number, well defined, and of a reddish color. At this period the symptoms began to put on a much more serious aspect. The tongue got dry and brown; the pulse rose to 130; the eyes became more injected; and the slight delirium which had previously existed, now showed itself in fits of great violence; the patient being at times hard to manage, and keep in his bed. A modified antiphlogistic treatment, including tartar emetic, etc., had been used during all this time. In spite of it, however, the patient was going on from bad to worse, and on the morning of the tenth day his state appeared nearly hopeless. It so happened that during one of the fits of violence which took place this day, the bandage got loose on the arm; the vein burst, and before the bleeding was commanded a considerable quantity of blood was lost; probably $\xi xij.$ The effect was magical. *The patient was at once brought to his senses; so much so, as to be aware of the danger of what was going on. I found him with a pale, anxious face, and his pulse excessively rapid. Otherwise he*

was quiet, and perfectly collected. By means of stimulants, anodynes and heat, he rallied from this state; and he subsequently made a slow, but steady recovery.

The case just given was one of common typhus. The petechiæ, dry tongue, and wandering delirium, afford proof of this. It could scarcely be referred to any of the varieties of the disease into which authors have divided it. If any, it might possibly be placed under the head of inflammatory typhus.

Dr. K. concludes that the head symptoms are usually the most serious; therefore anticipate these, as Dr. Graves advises, by free leeching and blistering. Better still, bleed from the arm to eight or twelve ounces: this treatment will moderate all the symptoms, will prevent the occurrence of secondary inflammations and congestions, and will cause the patient to derive more benefit from the administration of wine at the proper stage, than he otherwise would do. The treatment should be anticipatory, and should be active and antiphlogistic, as distinguished from expectant.

Part xvi., p. 38.

Chloroform in Typhus Fever.—When the system is worn out for want of sleep, and when there is much delirium, let chloroform be inhaled to induce sleep. Commence with 10 minims on a little sponge or pocket-handkerchief, and, if necessary, repeat it in a few hours, increasing the dose according to circumstances, being guided by the state of the pulse. In the case cited, the only other means used being the sponging of the body with tepid water, and applying cold pads to the head. The system was supported by beef-tea, porter, wine, etc., and to allay thirst, toast and water. The patient is now recovering; the pulse is reduced from 130 to between 70 and 80; the tongue is clean and moist; the skin cool; diarrhœa has ceased; the appetite is returned, and the countenance is regaining its natural aspect.

Part xvii., p. 20.

Yeast in Typhus.—When the petechiæ are very dark, or threatening to run into putridity, or in cases of dysentery attended with great fetor of the dejecta, give yeast in the following manner: R Cerevis. fermenti, ℥x.; camphoræ, ʒss.; æth. nitric. ℥iv. M. An ounce every one, two, or three hours.

Part xx., p. 23.

Delirium in Typhus.—"The approach of delirium should be the signal to the practitioner to look to the support of his patient."

Part xxi., p. 304.

Arrest of Typhus Fever by Quinine.—Dr. Dundas says:

I would here observe, that large doses of quinine are not only safe, but advantageous in every stage, and in every form of typhus fever, and that the action assigned to it by Dr. Pereira and others is altogether erroneous. The presence of intense headache, quick and strong pulse, dry and burning skin, dry, chapped and black tongue, intense thirst, hurried respiration, abdominal tenderness, and diarrhœa, do not contra-indicate its use. On the contrary, under large and repeated doses, the headache will subside, the pulse calm down, the breathing become less frequent, perspiration will return, the tongue will become moist, and the diarrhœa will be checked.

After the first decided impression has been made on the disease by the

quinine, it is invariably necessary to support the patient's strength by good beef-tea, and a moderate allowance of wine. Purgatives, without some decided necessity, should be avoided. When the head continues much involved, a strong capsicum enema—a drachm of the *powder* to ten ounces of water—will often afford relief. The minor adjuvants in fever may also occasionally be resorted to with comfort and advantage.

Part xxv., p. 17.

Typhus Fever treated by the Free Exhibition of Brandy.—Out of the eighteen cases under the care of Dr. Todd, treated by the administration of brandy, one only was fatal; in all the rest the plan pursued was remarkably successful.

The type of the disease was of the well-marked typhus character—presenting the following symptoms previous to the commencement of the treatment:

A copious eruption of scattered measles-like spots (mulberry or typhus rash); bowels either confined or but slightly relaxed; great prostration of strength; delirium (in six cases coma was present); a small and very rapid pulse. It may be well to premise, that they were treated as is done in almost all general hospitals in the open wards, their beds being purposely arranged so as to occur at some distance from each other, in order to prevent the accumulation of contagious emanations. The treatment pursued consisted in administering, either every hour or every half-hour, day and night, from half an ounce to an ounce of brandy, with a draught every second hour, containing *sp. æth. chlorici, mx., ammonise carbonatis gr. v., aq. pur. ʒj.* The patients were induced to drink as much strong beef-tea as possible; the head was always shaved; and, in most, a blister was applied to the scalp.

Part xxviii., p. 20.

Turpentine in Typhus Fever.—Dr. Laird, of Edinburgh, used this remedy with marked benefit in a severe case of typhus according to the following formula: Spirit of turpentine, spirit of nitric ether, of each three drachms; compound tincture of lavender, two drachms; camphor mixture, four drachms. Of this mixture (well shaken up), a teaspoonful was given in a wine-glassful of water every four hours.

Part xxviii., p. 22.

Food and Stimulants in Typhus.—[In Dr. Stokes's lectures, the reader will find an ample store of valuable practical remarks, but none more so than his directions to *feed* a fever. The following opinions about the actions of the heart, and their guide in the administration of stimulants, are most valuable. He says]:

What we have established as to the state of the heart in connection with the effect of stimulants, is simply this: we have ascertained that the efficacy of stimulants is often directly as the debility of the heart. It has been also ascertained that the power of bearing stimulants, their effect upon the nervous system, their good effects on the general condition, are directly as the weakness of the heart. We may lay down as a rule, that there are three conditions of the heart to be looked at by the practical man in the treatment of fever. In one, we have an excited heart—a violently-excited heart all through the case; and this heart may be excited and violent, although the symptoms be those of extreme adynamia,

although the surface be cold, the breath cold, and the pulse so feeble that it cannot be discovered. Nay, the heart may act with great force for several days, and yet there be no pulse at the wrist. This is one case. In the next case, we find exactly an opposite condition, in which the systolic force of the heart is diminished. This is shown by loss of impulse of the heart, by diminution of the first sound, and, in certain cases, by extinction of the first sound of the heart, while the second remains. This is a case which calls for wine, and in which you should give it; it is a case in which, in the vast majority of instances, wine will agree with the patient. There is a third set of cases in which the heart does not seem to be implicated at all in the course of the disease, in which, notwithstanding the existence of the most extraordinary group of symptoms affecting various organs, the heart, in the middle of the storm, seems to be in a state of calm and quiet. If we compare these three sets of cases with a view to prognosis, we may arrange them in this way. The case of excited heart all through, with feeble pulse and with adynamia, is unquestionably the worst case. There is no worse symptom in fever than an excited heart. It is especially a bad symptom when, with that excitement, we find a feeble pulse. The next will be the case of sinking of the heart; and the most favorable case is that in which, as I said before, the heart seems to escape disease. But you are not to suppose, that because you have an excited heart, you are not to give wine if the symptoms of the patient require it; and you are not to suppose that, because the heart is not affected at all, you are to withhold wine if the general symptoms of the patient require it. You are not to found your exhibition of wine or stimulants upon any one thing; you are to take the general state of the patient into consideration. What we have done is to discover an intelligible practical rule which will guide you in the use of wine in certain, I think in many cases; but you are not to suppose that because this man has a clear first sound at his heart, therefore you are not to give wine. You are not to suppose that because the heart is safe, you can do without wine. Now, in the case of H., recollect that although his heart seemed to escape, or was at most only feeble through the course of the disease, what frightful adynamia existed; how for day after day the patient's face was hippocratic, or almost so; how the general character of the disease was that of the most terrible putrescent fever; yet his heart escaped. And here is the result. We have given that man upward of twenty bottles of wine and twenty-four ounces of brandy, and now, on the twenty-eighth or thirtieth day of the disease, we have the satisfaction of feeling that his case may be set down as among the triumphs of medicine. I wish also strongly to impress on you the great importance of the use of other forms of nourishment in this disease; for we must not only keep up the nervous energy of the system by wine, but we must support nature by food. There is no mistake more fatal in fever than the withholding of food. I was early taught the importance of the use of careful nourishment in fever by my colleague, Dr. Graves.

In a large number of cases of typhus fever, the stomach has an excellent power of digestion; and, I believe, if we were bold enough, we should find that many articles of food usually forbidden to fever patients might be given with safety.

In the treatment of fever, you are never to despair so long as the patient can swallow. So long as he is able to take nourishment, so long as he is

able to swallow wine, no matter how dreadful or apparently hopeless the symptoms may be, you are not to desert him, but—to use the phrase of our glorious sailors—you are to fight the ship whilst she swims. In a disease under the mysterious law of periodicity, every hour of compelled life is a clear gain. And over and over again, you will find that your efforts will be crowned with success. You will see a patient lying with his torso icy cold; you will see him pulseless—his lungs filled up with secretion—his belly tympanitic—with dreadful diarrhoea—the lower extremities gangrenous—himself in a state of insensibility—and yet, even under these circumstances, a recovery is possible. But that recovery can only be effected by the steadfast determination of the physician not to desert his post until the vital spark has actually fled, and if you commit an error in holding on—in hoping against hope—at all events it is an error on the right side.

Part xxx., p. 20.

Use of Chloroform in Fever.—The fever poison sometimes acts on the brain in a remarkable manner, producing symptoms of disease both in the chest and abdomen, although those two cavities may be, in reality, free from disease. One of the most frequent characteristics of lesion of the brain is *insomnia*, causing, or followed by delirium, subcultus, etc. and accompanied, probably, by congestion of the substance of the brain.

There are two axioms laid down in Dr. Corrigan's late work on Fever, which should always be remembered: 1st, "the loss of sleep, if it continue, is of itself sufficient to kill;" and 2ndly, "if even the shortest sleep be procured, some advantage is gained."

To procure this sleep, then, by means which will not do injury to the circulating or digestive powers, would appear to be the most rational mode of treating this complication, and the rapidity with which the symptoms of great nervous exhaustion subside, when one sleep has been procured, proves the soundness of this mode of treatment.

To attain this object, Dr. Gordon recommends the internal administration of chloroform.

When the tongue is dry and brown, head not very hot, respiration short, frequent, and irregular; and when added to those there is delirium, more or less violent, give twenty-five minims of chloroform in a draught, to be repeated in an hour. This may be repeated in a few hours if necessary, and if the pulse be watched, may be continued every second hour for some time. The *inhalation* of chloroform is useless in these cases, and may be followed by convulsive movements.

Part xxx., p. 21.

Typhus Fever.—Typhus is known by being very contagious, by the greater prevalence of cerebral symptoms, by the greater depression, by the dark mulberry rash, very much resembling measles, persistent, not renewed, and not fading on pressure, and by the absence of disease of Peyer's glands.

Typhus fever is recognized in its early stage, without much difficulty; there is a rapid and rather full pulse at first, a brown tongue, great thirst, and more or less delirium; the bowels are generally confined; there is a characteristic mulberry rash. The bowels should be opened with a drachm or two of castor-oil; the thirst should be allayed by toast-and-water; a mixture should be prescribed containing spirits of nitric ether, solution of acetate of ammonia, and camphor mixture. If there should be great delirium, much relief will be obtained by shaving the head, and a

blister should be applied to the nape of the neck. As the disease advances, the pulse, retaining its rapidity, most probably loses its fullness, and as soon as this is observed, beef-tea and wine should be administered in small quantities often repeated, and a mixture containing the carbonate of ammonia, should be substituted for, or added to, the mixture just described. If the symptoms of sinking should increase, which is very often the case, and is indicated by a feeble, fluttering, and irregular pulse, trembling of the limbs, and muttering delirium, then brandy should be administered pretty freely in addition to the wine, and strong beef-tea should be frequently given. In addition to the carbonate of ammonia, the stronger diffusible stimulants should be prescribed, as the spiritus ammoniac aromaticus, the spiritus ætheris compositus, and a modification of the *mistura spiritus vini Gallici*. It is only by a vigorous adoption of these measures that life can sometimes be saved; and, indeed, it is perfectly extraordinary how, under circumstances apparently desperate, the patient has been restored by an unsparing use of those and similar stimulants.

The use of opium in typhus fever, must not be passed over without a remark upon its great value in certain stages of this disease. In the early period, this drug would be injurious; in the latter it is useless. But where there is great restlessness and irritability, together with great weakness, the use of opium is invaluable; it quiets the patient, procures him sleep, and raises the pulse. The usual form of administration of this medicine at the London Fever Hospital, is the tincture, given in doses of ten minims, and repeated if restlessness is not relieved. *Part xxxiii., p. 20.*

REMITTENT FEVER.

The connection between malaria and the evolution of sulphureted hydrogen from different localities, is strikingly pointed out in an interesting paper by Professor Daniell. He seems clearly to prove that the unhealthiness of particular places, as the western shores of Africa, and particularly where large rivers empty themselves into the ocean, is owing to the evolution of sulphureted hydrogen, produced by "the decomposition of sulphates in the waters by the carbonaceous matter of vegetables." So small a mixture as a fifteen hundredth part of the sulphureted hydrogen in the atmosphere, acts as a direct poison upon small animals, and produces very uneasy sensations on the human body. When in larger proportions its effects are still more remarkable, producing sudden weakness and all the signs of asphyxia. The fatal effects of a communication of the sea water with inland marshes, was observed by Signor Giorgini in 1741.

Dr. Robert Hamilton of Lyme Regis, noticed the same fact in 1793. Dr. James Allen, in his paper "on some of the predominant diseases of the African islands," arrives at the same conclusions, without, however, giving the same explanations that Professor Daniell does. It seems evident that wherever such decomposition goes on as to produce the evolution of sulphureted hydrogen, the dreadful effects of miasma will follow to the animal system. And it is highly satisfactory that Professor Daniell having so clearly traced the cause of this pestilential influence, has also directed us to the remedy, namely, *chlorine*. Chlorine and sulphureted hydrogen cannot coexist together. "Plentiful fumigations of chlorine would, therefore, infallibly prevent the deleterious effects." This ought to be particularly known in Africa and the islands adjoining its eastern

coast, Madagascar, etc., and also in the unhealthy climates of the east and west, where there is frequently every facility afforded for the intermixture of the waters of the ocean with the immense quantities of vegetable matter washed down by the rivers and torrents from the luxuriant soil.

Part iv., p. 137.

Pathology of Fever.—Dr. Willis advances opinions respecting the cause of fever, which, if correct, seem to overturn all our preconceived notions of it—especially with reference to its origin in those localities where we suppose marsh miasma and malaria to exist. He reminds us of the observation of Fourcault, that an animal, healthy and uninjured, very soon dies if its body be covered with an impervious glaze. “Becquerel and Breschet repeating the experiment of M. Fourcault, discovered that the extinction of life under the circumstances indicated was accompanied by a signal fall of temperature; the animal, whose body was induced with an impervious glaze, began to lose heat on the instant, and the loss never ceased until life had fled, when the temperature of the internal as well as external parts of the body was found to be within 30° cent. of that of the external atmosphere, which, on the day of the experiment, indicated 17° c.” None of these gentlemen have offered any other explanation of this phenomenon than the old one, that the office of the cutaneous exhalation, as a means of refrigerating the body, was gone.

Dr. Willis thinks that when the secreting function of the skin is expressed or greatly disordered by a *chill*, it may produce the same effect as when the surface is covered by an impervious varnish. In this process there may be included more or less of inflammatory action. In common with many others, he denies that the specific poisons called miasm or malaria, are the cause of those deadly fevers which are so common in tropical regions. In short, he asserts that these poisons are nothing more than “moist warm air—air excessively moist, considered in connection with its own temperature, and the temperature of the human body.” It is well known that an individual will bear a very high temperature better when the surrounding air is dry, than when it is moist. In the former case the capillary arteries exude, and the veins imbibe with increased activity; but if the excitement continue too long the temperature of the body increases too rapidly, and death would result. But this is not the true explanation, when the surrounding air is moist. In this case the animal dies from the same cause as when the body is covered with an *Impervious Glaze*—from the want of oxygen being properly conveyed into the system.

“Now it is highly interesting to observe that the air of unhealthy inter-tropical climates differs little from that of a vapor-bath at between 80° and 90° Fahr. The dew-point of the atmosphere in these countries appears, in general, to be not more than four or five degrees, and frequently not more than a single degree, Fahrenheit, below the temperature of the ambient air. Were the temperature between 90° and 100° Fahr., and the dew-point in the same proportion high, man could not by his nature continue to exist for more than a very few hours. In a country having a high mean temperature, say of about 80° Fahr., and an atmosphere that is close upon the point of saturation with humidity, which is precisely what obtains on the western coast of Africa, to quote a single instance, man is evidently on the verge of circumstances that are even incompatible with his existence. He has but

to be exposed to fatigue and the burning rays of the sun to be actually brought into such circumstances. The surrounding atmosphere cannot take up the watery vapor, which is then presented to it in large quantity by the sudoriparous glands, with sufficient rapidity to meet the wants of the system, in its state of excitement, and requiring the freest access of the most thoroughly oxygenated plasma to keep up movement and life in its several constituent atoms. Great general derangement—*Fever*—ensues, and life is almost of necessity the forfeit."

Whether or not this be a true explanation of the cause of many fevers, we know that to restore a healthy action of the skin is of the first consequence, and when we find its functions restored, we seldom feel serious alarm. Dr. Willis recommends for this purpose, beside the usual exhibition of antimonials, etc., that the patient be covered with a sheet and have a sponge dipped in tepid water passed over every part of his body, by the hour together, until the thermometer, both in the axilla and mouth, has been brought down from 106° or 108° Fahr. to 90° or 100°. This was the object of the cold affusion in the practice of Dr. Currie. *Part x., p. 13.*

Remittent Fever—African Remittent.—To preserve in health the crew of a ship on the malarious coasts, they should land as seldom and for as short a time as possible, and not after nightfall; should not sleep on shore if it can be avoided, and on no account without having a complete screen between the body and the sky; should be prohibited from access to intoxicating liquors; and should take daily a dose of quinine or bark, both when exposed to the malaria and for a fortnight after returning on board. The ship must be kept clean, well ventilated, and free from damp. If in spite of all precautions malignant fever break out, the ship must leave the coast. *Part xvi., p. 44.*

Remittent Fever.—The treatment in these cases, says Dr. G. Bird, is exceedingly simple. First, remove the hair, wash the body daily all over, and put the patient on low diet; and after clearing the bowels with hyd. c. cret., or ol. ricini, give sodæ sesquicarb. until the state of the secretions is corrected; quinine then given acts almost like magic, curing the patient generally in a week. *Part xi., p. 61.*

Treatment of West India Remittents and Intermittents by Quinine.—In using quinine as a remedy for the West India intermittent or remittent fever, it should be given till its specific effect on the system, termed by the author "cinchonism," and marked by the supervention of more or less deafness and ringing in the ears, is produced. The best way to saturate the system with the remedy, against the paroxysms of intermittent, is to give hourly doses of three grains, till twelve doses have been taken; or if the disease is a quotidian with short intermission, six grains hourly, until six doses have been taken. One of the most valuable applications of quinine is against relapses of intermittent fever. For this purpose, two days before the anticipated relapse, give three grains of quinine thrice daily for four days; repeat the treatment at the time of the next anticipated relapse, and so on for three or four times successively; when, by thus baffling the relapse, the disease will be entirely eradicated. *Part xviii., p. 26.*

Tropical Fever and Dysentery.—When the remissions are imperfect, and there is acute congestion of some important abdominal or other organ, give quinine (in ʒj. doses) from ʒj. to ʒij. daily. The more acute the symptoms and the less the remissions, the larger and earlier should be the

doses. These doses should be continued until complete cinchonism is produced, namely, ringing in the ears and deafness. In robust cases, before the accession of the fever, one blood-letting often gives great temporary relief.

Part xxii., p. 32.

Malignant Fever.—Dr. Cummins believes that all malignant fevers require powerful stimulants of every kind; and of all therapeutical agents, quina, in large doses, is the most valuable. In purely nervous cases, we should expect it cutting short the disease; in those where the blood is primarily diseased, it will neutralize the tendency in the diseased blood to produce disordered functions of the sympathetic nerve, and will thus keep the patient alive until the diseased blood has been thrown out of the system by crisis.

Part xxxiv., p. 17.

Remittent Fever.—In the treatment of this form of fever, especially as it occurs on the coast of Africa, quinine is undoubtedly the most powerful, and most generally applicable antiperiodic remedy which we possess. A form lately introduced called "Herring's unbleached sulphate," is quite equal to the bleached in its action, and is considerably cheaper. Its value in fevers is especially as an antiperiodic, its pure tonic effect being only secondary.

Dr. Baillie believes:

1. That remittent and intermittent fever are essentially the same complaint, differing only in degree and intensity.
2. That the endemic fevers of Africa, and of other tropical regions, are of this class.
3. That these may, to a great extent, be guarded against by the use of quinine as a prophylactic.
4. That the main therapeutical agents for the treatment of this class of diseases are antiperiodics.
4. That an almost invariable *sequela* is an affection of the spleen, so much so as almost to be regarded as a stage of the disease. *Part xxxv., p. 17.*

YELLOW FEVER.

Use of Quinine.—The "Lafayette Gazette" mentions the salutary effect, in cases of yellow fever, derived from the exhibition of the sulphate of quinine, in very large doses. The common practice of physicians has been to give it in small doses during the periods of remission. The new practice is based on a different theory, and varies essentially from the old. When quinine is taken in large quantities, medical men have observed that it produces but a slight and inconsiderable stimulating effect, which is succeeded within a few hours by a powerful sedative impression, that is generally durable. With this view, the medicine is exhibited in one very large dose, of from twenty to sixty or eighty grains, in the very incipency of the fever, while the morbid action appears to be in process of formation—that is, within six or eight hours immediately after the appearance of the earliest symptoms. The quinine is administered in a single dose; the object of the physician is to bring about the sedative influence of the remedy before any of the organs, as the head, stomach, etc., become specially affected by the disease. If it should fail to produce the anticipated effect, the case is too far advanced for a second trial, and it must be treated on general pathological principles. Let it, however, be remem-

bered that in thirty or forty cases which have been subjected to this novel curative method, not one has terminated fatally. The action of the quinine has been uniformly most salutary, operating like a charm, and dissipating the symptoms of the malady ere they become concentrated on different organs.

Part ii., p. 34.

Nature of the Black Vomit.—Dr. Nott gives it as his opinion that the black vomit is *blood*, exhaled in its natural state from the capillaries of the stomach, and changed black by the secretions with which it comes in contact; this chemical change, his facts go to show, is produced by one or more acids. He tested the black vomit in a number of cases, and in every instance found it to be acid. When ejected from the stomach during life, it invariably turns litmus paper red, and the aqueous portions thus filtered differed in color; in some it was perfectly limpid, like water; in one, of a light green color, like dilute bile with an acid added; in others, it was of a deep brandy or rum color, which appearance was no doubt given by a small admixture of blood.

The secretions of the stomach in yellow fever are often excessively irritating; and this property is probably attributable to the presence of acid. The patient often complains, in the black vomit stage, of a burning or scalding sensation in the stomach, which is immediately relieved by throwing off its contents. The patient, too, often complains of the black vomit scalding the œsophagus, which, after death, is usually found more or less denuded of its epithelium. The acridity of this secretion may possibly account for many of the morbid changes in the stomach and œsophagus. A morbid secretion of tears will scald the cheek; mucus from the nose inflame the lip; morbid secretions from the bowels excoriate the anus; morbid bile irritates the stomach and bowels, etc.; and we know that the gastric juice will often corrode the stomach in a short time after the extinction of life. The next step was to ascertain whether acids would, with blood, produce a compound with the characters of black vomit. Dr. N. accordingly took a few drachms of blood from the heart of a patient dead of yellow fever, and added to it four or five drops of muriatic acid diluted with a drachm or two of water, and shook them well together; the black color was produced instantly. The same experiment was tried repeatedly on the blood of yellow fever patients, and on that drawn from a patient with pleurisy by cups, and the effect was invariably the same.

Part xv., p. 108.

Yellow Fever—Abortive treatment by Quinine.—In New Orleans, as well as in the surrounding country, the fevers are intermittent, remittent, and continued, "alternating in type, and running into each other." In summer and autumn, they have a decided tendency to crisis by hemorrhage: "this," says Dr. Fenner, "*makes yellow fever*: it forms the true characteristic difference between the high degrees of summer and autumnal fever in the city and country, and must depend on locality and attendant circumstances. During the healthiest years it predominates over all other types; but during the sicklier years, in the country, it runs into remittent, bilious and congestive; whilst in the city it runs into yellow fever. Dr. Harrison testifies that he had often observed malignant intermittents immediately to precede the outbreaks of yellow fever epidemics."

Dr. Fenner's observations being drawn from a vast public and private experience, and in particular from observations made in, and from the sta-

statistics of the New Orleans Charity Hospital, which is probably the most extensive fever hospital in the world, the following statement is of peculiar force: "Physicians may say what they please about being able to distinguish a case of yellow fever, as soon as they examine it; we do not believe it possible, according to their ideas. Rarely does a summer pass in which we do not hear of some intelligent and experienced practitioner being perfectly astonished at seeing what he had pronounced a case of intermittent or remittent bilious fever terminate in black vomit, or other hemorrhage."

Dr. Fenner is a very warm advocate in favor of the administration of large doses of quinine, for the purpose of cutting short yellow fever. In fact, he urges the excellence of the abortive treatment of yellow fever, with the same confidence that Dr. Dundas recommends the same treatment in the continued fevers of this country. The experience of Dr. Fenner certainly gives additional strength to the important practical doctrine which Dr. Dundas has brought before the profession.

Part xxv., p. 33.

Yellow Fever.—[Dr. Cummins observes that the small doses of quinine, recommended in our Pharmacopœias, have no effect in yellow fever, and that many cases are lost from the dread of pushing the remedy to the necessary extent.]

Most persons believe that when deafness is produced there is no further indication for its use; but this is a fatal error, as in most cases it is necessary to push it for a much longer period. It is difficult to lay down any fixed rules as to the quantity that should be given in any individual case; but if a well-founded and long-established rule of medicine is borne in mind, that in certain diseases ten times or more of the ordinary dose of a medicine is required to produce its effect, and that yellow fever is one of those diseases, it will be found that the best guide for the administration of quinine is the *amount of nervous depression present*.

Quinine is a stimulant, and as depression would succeed the use of the quinine, the remedy should be continued through the case. Sometimes, by this remedy, we may cut short the disease at once, if the case is seen very early. To do this we may give ʒss. of quinine, and ʒj. of calomel, directly, and a similar dose with five grains of James's powder an hour afterward, followed in two hours by an ounce and a half of castor oil. This treatment will very often cure the disease at once. If it does not, and the disease progresses, twenty grains of quinine may be given for four doses. If deafness has commenced, we should wait until it has subsided. Then ten grains may be given every second hour, and continued according to the degree of headache, pain in the back, congestion, and muscular prostration. During convalescence, three grains may be given three times a day in wine. If the larger doses of quinine be vomited, a large mustard plaster should be applied to the epigastrium, and another dose given; and if vomiting again occurs, the process should be repeated. Occasionally, however, ʒj. of sulphuric ether, and eight or ten drops of creosote may be given, to allay any spasm, and we may then wait an hour before again trying the quinine.

Part xxviii., p. 33.

Yellow Fever—Treatment with Spirits of Turpentine.—First clear out the bowels by a dose of calomel or blue pill, with a solution of Epsom salts. Then give turpentine in doses of twenty minims, three times a day;

a little sweet nitre may be mixed with this remedy. If the defections are bloody or vitiated, give along with the turpentine small doses of opium and castor oil. The auxiliaries are sinapisms and blisters to the epigastrium, emollient enemata, and during the stage of debility, wine negus, beef-tea, etc., and cinchona injections. The turpentine was tried in a very severe case of typhus with excellent effect, in the following form: Spirit of turpentine and spirit of nitric ether, of each three drachms; camphor mixture, four drachms; compound tincture of lavender, two drachms. A teaspoonful to be given in a wineglassful of water every four hours.

Part xxviii., p. 28.

Yellow Fever—Quinine.—Give quinine in the early stage of depression, promptly, boldly, and in large doses. The first stage is one of diminished vital energy, which quinine raises. Give ten to twenty grains every second or third hour. Four or six hours should never elapse between one dose and another during the stage of depression; and, when necessary, give it up gradually.

Part xxx., p. 25.

Yellow Fever.—Give fifteen minims of spirit of turpentine every three or four hours, combined with a little nitric ether and camphor mixture. As soon as a remission takes place, give quinine, and a more nutritious diet.

Part xxxi., p. 40.

FINGER.

Reunion of a Completely Separated Portion of Finger.—Mr. A. Graham relates the following case: A joiner, of middle age, and apparently healthy constitution, while splitting wood with an axe, cut through the index finger of his left hand, between the first and second phalanges. He lifted the separated part from among the shavings, and immediately walked a few yards to a place where I happened to be. Being asked for the amputated portion, he took it from his waistcoat pocket, and laid it on the table. I fixed it on by two sutures, and adhesive strap, and on the fourth or fifth day a pair of scissors being applied to the point of the finger, he distinctly felt them. Complete union took place, with restoration of the powers of the part which had been separated.

Part iii., p. 92.

Reunion of Completely Separated Portions of Finger.—A girl, fourteen years old, was engaged with another person in some domestic occupation, when the latter accidentally let fall a knife, which cut off two of her fingers below the first phalanx. The writer being soon after summoned, found the two pieces in some meal on which the patient's hand was resting at the time of the accident; but he discovered, to his great surprise, that each of them was divided into two portions. However, he determined to try to unite them, and having put the bits together, he kept them all in their places with sutures and strips of plaster. In a few days the adhesion was completed, and the patient ultimately recovered the entire use of her fingers.

Part vi., p. 154.

Reunion of Fingers after Complete Separation.—A laboring man, whilst cutting grass with a sickle, had, by a clean incision, cut out of the thumb a triangular-shaped piece, the incision extending from the end

down the centre of the nail, nearly to the root, then outward toward the forefinger. The piece thus disunited consisted of the portion of nail described, integument, muscle, and a minute portion of bone. From the finger he had nearly sliced off a piece of muscle and integument on the side next to the thumb. I sent him back to the distance of two miles, to search amongst the grass for the dismembered portions, which he succeeded in finding, and which, upon his return, I carefully washed with warm water, and adjusted in exact apposition to the surfaces from whence they were cut. I freely applied collodion, so as effectually to exclude the atmosphere, and prevent any further hemorrhage, and with narrow pieces of strapping held them firmly in the position in which I had placed them. The result has been the perfect reunion of both pieces, leaving little or no cicatrix.

I should mention that the period that elapsed from the occurrence of the accident to the replacing of the parts was four hours; also that the pain, which was very acute, from the exposure of the cut surfaces to the atmosphere, ceased immediately that the parts were replaced; and the man experienced little or no pain afterward.

Part xx., p. 113.

Finger—To Remove a Gold Ring from.—First, polish the outer surface of the ring by means of a strip of linen and prepared chalk, then apply quicksilver to the whole surface of the ring; in the course of a few minutes, by means of gentle pressure made upon the ring, it will break in pieces. The mercury amalgamates with the gold, crystallizing it, and rendering it brittle as glass.

Wind closely and tightly round the finger, as far as the ring, a piece of well-soaped twine; then, with the end of a needle or probe, force the end of the twine beneath the ring, and gradually unwind. The ring will come off with the twine.

Part xxviii., p. 321.

FIRE.

Means of Preserving Combustible Substances from.—[In seeking for a substance capable of preserving combustible articles from the action of fire, it appeared to Dr. Smith that:]

Sulphuric acid seemed to present the most promising characteristics of a substance incapable of burning, and of acting so strongly on vegetable substances as to make them incapable of burning. Sulphuric acid itself is a body perfectly burned, or we may say over-burnt, having an atom of oxygen given to it by artificial means, so to speak, which atom is difficult to separate, and therefore not resembling the oxygen of many highly oxydized bodies. It requires a high degree of heat to raise it to vapor; and the vapor formed is sluggish and heavy, remaining long where formed, and quenching flame wherever it is. It destroys the texture of wood also and other vegetable substances, causing them to give out after a time gases which do not burn, mixed with some which do burn; but if there be enough of acid, forming a mixture which does not burn. The wood also cannot be again induced to become combustible until it be heated to redness, so as to remove all the sulphuric acid, leaving only charcoal.

If sulphuric acid could be introduced into the wood just at the time the fire was going to take place, the fire would cease to take place; and this we can do easily by saturating the wood with sulphate of ammonia. When there is no fire present, there is no sulphuric acid present, as such; but as soon as the heat rises, ammonia goes off, and sulphuric acid is instantly presented to the wood. The ammonia does not come off quite pure, it is mixed with nitrogen and sulphurous acid; and this disengagement of gases is of advantage in extinguishing fire; when the heat rises to 536° the sulphuric acid is then left to act on the wood in part, and to volatilize in part, and that which I have mentioned takes place.

I have no doubt that a house built of wood prepared in this manner might have a fire lighted on the wooden floor without danger, burning only on the spot to which the fire was limited. A ship also would be safe, even if the cinders did fall from the grate in stormy weather.

I know that muriate of ammonia has been used, and that it acts very well; but I think the sulphuric acid is superior, the ammonia being only to keep it innocent; any other volatile base might do. I am sorry, however, that this is not perfect; its solubility in water is a great disadvantage, as it cannot be applied to clothes to be frequently washed. True, it is so cheap that it might be applied every washing where there are peculiar dangers; but if a person were standing very near the fire, the ammonia would in part be evaporated, and the acid remaining would be enough to injure the fabric. There are, however, cases, such as curtains, to which this could not apply, and where it would be valuable.

Sir William Burnet's liquid is chloride of zinc; he uses it for preserving wood and canvas, and also for preventing fire. I am certainly surprised that more use has not been made of it, being, as far as I have seen it, so efficient. I believe the manner in which the chloride of zinc acts is very similar to that of sulphuric acid, destroying the organic matter on the approach of heat, and rendering it incombustible. It can be introduced into wood at a specific gravity of 2000, I believe; sulphate of ammonia cannot easily be used above 1200. By heating the solution more may be attained. Sulphate of ammonia is cheap and easily procured and used, not hurting anything with which it may come in contact, and therefore more easily managed in households.

The chloride of zinc is said to unite with the fibre. This cannot be said for the sulphate of ammonia. It would not, however, come from the centre of a beam of wood, even if immersed in water, as the water enters with great difficulty into wood; and the solution itself cannot be introduced without forming a vacuum in the saturating vessel, and so removing all the air from the wood.

[At the Worcester meeting of the Provincial Association, Mr. Crompton, of Manchester, exhibited the action of the sulphate of ammonia, in preserving paper, etc., from the action of fire.]

He exposed a piece of newspaper, which had been soaked in sulphate of ammonia to the flame of a candle—though the texture of the newspaper was destroyed, it did not take fire. The heat caused the ammonia to fly off, and the sulphuric acid being set free, charred the paper. As the sulphate of ammonia did not the slightest injury to the texture of the fabric, it was most desirable as a non-combustible application for children's dresses, bed curtains, etc.

Part xx., p. 175.

FIRING.

"Firing" as a Counter-irritant.—Sciatica, lumbago, chronic rheumatism, paralysis, neuralgia, and hysterical pains, are the diseases in which the form of counter-irritation has been serviceable. Dr. Corrigan says:

The iron used is very portable, consisting of a thick iron wire shank, of about two inches long, inserted in a small wooden handle, having at its extremity, which is slightly curved, a disc or button of iron, a quarter of an inch thick, and half an inch in diameter, the whole instrument being only six inches in length. The face of the disc for application is quite flat. This, trifling as it may seem, must be attended to. In the French cauterizing irons, as they are sold by the cutlers, the buttons for the cauterizing are spherical, and the consequence is, that they must be either pressed long and deeply into the skin, to bring them in contact with an extent of surface equal to their diameter, or they can be made only to touch at a single point. Another objection to the French iron, is the great length of its iron handle. This is necessary in the French instrument, as the iron is intended for being heated in the fire, but it terrifies the patient; whereas this little instrument will hardly attract attention. The only other portion of apparatus required, is a small brass spirit-lamp, so small that it can be carried in the waistcoat pocket.

To use the instrument, it is only necessary to light the lamp, and hold the button of the instrument over the flame, keeping the forefinger of the hand holding the instrument at a distance of half an inch from the button. As soon as the finger feels uncomfortably hot the instrument is ready for use, and the time required for heating it to this degree is only about a quarter of a minute. It is applied as quickly as possible, the skin being tipped successively at intervals of half an inch over the whole affected part, as lightly and rapidly as possible, always taking care to bring the flat surface of the disc fairly in contact with the skin. In this way the process of firing a whole limb, or the loins making about 100 applications, does not occupy a minute, and the one heating by the lamp suffices. You can ascertain at once whether the heat be sufficient. If you look sidewise at the spots as you touch them, you will observe that each spot the iron has touched, immediately becomes of a glistening white, much whiter than the surrounding skin. In the course of a quarter of an hour, or sometimes of a very few minutes, the whole skin becomes of a bright red, and the patient feels a glow of heat over the part. The iron, I need hardly observe, is never rendered red hot. It is, indeed, very little hotter than boiling water, and I never made an eschar with it, and very rarely indeed raise a blister. There are merely seen upon the skin next day, a number of circular red marks, the cuticle not even being raised, and the surface being ready, if required, to receive a fresh application.

The thickness of the disc or button of the instrument is not a matter of indifference. If it be thinner than the measure I have given, it will cool too rapidly; if it be thicker, it will take too long a time in heating. Of the little pain produced by its application, you can form an estimate when I tell you that some of our resident clinical clerks here have preferred it in their own cases, when suffering under local muscular rheumatism, to any other method of counter-irritation, as being the least troublesome, the most rapid, the least painful, and the most effectual. I can certainly

recommend its application in the way here directed, as one of the most useful of our counter-irritants; it can be applied so rapidly, so extensively, and, as I have already said, without even the patient knowing very often what has been done. Its superiority over blisters may also be owing to the suddenness of impression produced. The effect is often as instantaneous as the application. My friend, Dr. Mitchell, master of the Victoria Lying-in Hospital, consulted me some months since for a severe attack of lumbago. I applied the firing, and he was in one minute quite free from pain. He has since used it himself extensively in practice.

A gentleman, in leaping from a railway carriage, strained the muscles of his loins. He used for two or three days, liniments, and took a warm bath. He continued to suffer so much that he at length called on me. He could not sit down on a chair without much inconvenience, but to rise was a labor of great torture. While conversing with him, and drawing off his attention, I heated the iron and fired him over the loins. He was instantly well.

In another case a gentleman from riding a hard pulling horse, began a year since to feel numbness in the little and ring finger of the left hand. This gradually crept up along the ulna, to the elbow, and at length there was such loss of muscular power, and so much numbness whenever the bridle passed upon the fingers of the left hand, that he became very nervous about riding. I fired him along the forearm inside and outside from the elbow to the hand. He has felt no inconvenience since, and a period of a month has elapsed. In sciatica I consider this mode of firing a most valuable aid in our treatment. It may, however, require several applications before permanent relief is obtained. I have also used it with the greatest advantage in cases of neuralgia of the fifth pair of nerves, and in paralysis of the portio-dura of the seventh. Even delicate females will not object to its frequent repetition when required. *Part xiii., p. 55.*

FISTULÆ.

FISTULA IN ANO.

On the subject of *fistula in ano*, Sir B. Brodie makes some remarks which throw rather a new light on the cause of the difficulty in healing the abscesses in the neighborhood of the anus. It has generally been supposed, till lately, that the healing process was prevented chiefly by the irregular action of the sphincter and levator ani muscles: this opinion, however, is now found to be incorrect. The true reason seems to be some ulceration in the mucous membrane of the bowel, within a short distance of the anus. We know that an ulcer may simply perforate the mucous membrane without penetrating through either the muscular or peritoneal coats, or it may perforate through the mucous and muscular only, or through all three. Sir B. Brodie thinks that fistula in ano arises originally from ulceration of the mucous membrane, extending through the muscular tunic into the cellular membrane external to the intestine. This is of the greatest importance to know, not only in a pathological but in a practical point of view; because if in all, or in most cases, there be an ulcer of this

nature, it is evident that an operation will be of little use, unless the small ulcer situated more or less up the bowel be discovered and included in the operation. Sir Benjamin says he is persuaded "that the inner opening always exists; and he never fails to find it when he feels for it in the right place, which is generally, if not always, situated immediately above the sphincter muscle, just the part where the feces are liable to be stopped, and where an ulcer is most likely to extend through both the tunics." The most common cause of abscess of this kind is the lodgment of hard feces in the bowel; by the straining which is necessary to expel them the mucous membrane is torn or abraded, and then the passage of the feces causes ulceration. Although the internal ulcer is generally just above the sphincter, the abscess will often extend much higher, a probe may pass one, two, or even four inches up the side of the bowel.

There may also appear to be more abscesses than one, there being several openings externally, but it is important to know that the whole cause of the mischief is the one ulcer just above the sphincter, which is perpetually allowing bits of feces to escape through it, and thus keeps up the mischief. Cases are recorded in which the internal orifice has evidently healed up as the fistulae have healed. This has occasionally been accomplished by the long-continued use of Ward's paste, the confectio papaveris, which acts as a stimulus to the part, and may eventually cause the ulcer to heal. But the great art of curing fistula seems to consist in finding the small ulcer which has given rise to the disease. This opening is too often looked for in the upper part of the sinus, which, if high up, is never the proper place to find it. It must be sought for immediately above the sphincter muscle. To find this opening it is better also to use a probe with a flat handle, so that we may know in which direction we are pushing it when bent; it is better also to have probes of different sizes. In feeling for the internal orifice we should pass the finger into the rectum, and just above the sphincter we shall often find a little irregularity, which is the place where the orifice is probably placed. The probe, which ought to be grooved, is then to be introduced into the external wound, and by a little manipulation, the opening into the rectum will be found. The probe may now be passed into the bowel, and by means of the finger its point may be brought out at the anus, taking care to have the groove of the probe downward, or in such a direction that the scissors or knife may be easily guided along it. Sir Benjamin Brodie generally makes use of a pair of curved knife-edged scissors to divide the parts. It has long been supposed necessary, when the abscess extends to some distance up the side of the bowel, to lay open the whole sinus into the rectum; but this may be a frightful operation; it is not known what vessels may be divided, and it is altogether an unnecessary operation, as the case will generally be cured by simply finding the internal ulcer, and dividing all the parts between that and the skin, in the way just recommended. Part ix., p. 102.

Fistula in Ano treated by Ligature.—Mr. Lomas, of Manchester, gives us his method of using the ligature in fistula in ano, as follows:

I employ a fine metallic wire of silver or platinum. Having passed a probe director (one of Sir Benjamin Brodie's) along the fistula and through its internal orifice, its point, being very flexible, is readily directed downward and out at the anus, by the finger previously introduced within the rectum; the structures to be divided are now upon the instrument, and, as

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it were, everted. The wire is then passed along the groove of the director, and the ends are crushed together until a very moderate compression is exerted upon the inclosed parts. It promotes the personal comfort of the patient to leave the twisted ends rather long, and to fix them on the sacrum with a cross slip of adhesive plaster. This trifling arrangement allows the buttocks to lie perfectly apposed, and he (the patient) is free from the disagreeable sensation of an interposed body or rough point, and visits the closet more comfortably. All that remains to be done is to twist up the ligature as it becomes slack, and in a week or a little more, it is free. I do not confine the patient altogether: it is, however, advisable to keep him on the sofa for the first twenty-four hours, as erysipelas might arise in a bad subject, and also to limit his movements considerably during the entire treatment.

[He remarks, that he has found no strong reason to prefer it to the knife, and thinks that the plan of presenting the parts for division upon Sir B. Brodie's probe director, and dividing them with a sharp bistoury, is an operation so short, simple, and effectual, as to leave nothing to be desired. The opinion of Mr. Luke, of the London Hospital, is, that the ligature consumes decidedly less time in establishing a cure than the knife.]

Part xi., p. 154.

Fistula in Ano.—*Fistula in ano* (blind external) can often be cured without cutting, by injecting alcohol the whole length of the sinus, three or four times a day, until it brings on inflammation; when that takes place, the cure is generally completed in a short time. In full habits, bleeding by the arm should be practised, if required, and the bowels opened pretty freely, before the alcohol is injected. Should the inflammation become too severe, it should be regulated by poultice or cold-water dressings, and low diet should strictly be attended to.

Part xi., p. 150.

Fistula in Ano.—Abscesses in the ischia-coccygeal space very frequently lead to fistula in ano, if they are not its constant cause. Transfix them with a bistoury as soon as ever they are detected.

Part xvii., p. 173.

Remarks on Fistula in Ano.—Bransby B. Cooper says: In nearly every instance does the disease begin in the rectum and proceed downward, arising from some disordered state of the viscus, or perhaps of the viscera above; and when an abscess has once formed in connection with the rectum, the parts around are kept in a constant state of irritation from the escape of gas or fæces. I repeat, it is an extremely rare circumstance for an abscess to rise externally to the bowel, and ulcerate through it, although I do not deny that this may, and does sometimes happen. Surgeons usually in these cases of fistula in ano, search about with a probe, and endeavor to find the communication with the rectum, or to ascertain the extent of the fissure. To me, however, this is a matter of very little importance and consideration; for, whether the fistula does or does not communicate with the gut, or whatever its extent, the treatment or course to be adopted is the same, namely, to divide the fibres of the sphincter ani muscle, and thus allow the parts, which were previously under the constant influence of muscular action, to remain as much at rest as possible.

The operation itself is a very simple one, and only requires the exercise of a little moderate care and attention. I usually place the patient on his hands and knees in bed, or else kneeling across the back of a chair, so as to obtain a full view and exposure of the affected part; then passing a

director through the fistula as far as the bowel, and along this a probe-pointed bistoury, I withdraw the director, and take hold of the bistoury with either the right or the left hand, according to the side of the arm on which I am operating; next introducing the index finger of the other hand into the rectum, and feeling for the point of the bistoury, I press them together, and in that position withdraw them, cutting through rectum, sphincter, and all the intermediate parts. It is not requisite or necessary to pass the bistoury to the extreme extent of the fistula; on the contrary, the division of the sphincter fibres is sufficient to promote the healing of the whole fistula. And again, whatever number of fistulae there may be, the operation on one will effect the cure of all. I have just one or two more remarks to make, in completing this subject, which are of much importance, in insuring a successful result from the operation. The division of the sphincter should be in a direction straight across it, and not too much toward the coccygis, or some of the fibres will remain undivided and the operation incomplete. And in the female, the division must not be directed toward the vagina, or the opposed surfaces of the wound will be constantly subjected to the action of the muscular apparatus of this organ, and will not unite or heal. Should you ever meet with a fistula between the vagina and the rectum, I, by all means, recommend you to leave it alone; for, if you operate on it, the wound you occasion will never heal, and your patient for ever afterward be unable to retain her feces. If you like, however, to make an incision, and divide the sphincter and away from the fistula, I think you may, in some cases, be successful in effecting a cure, by removing the exciting influence of this muscle. At all events it is worth a trial.

Part xxiii., p. 167.

Fistula in Ano treated by the Platinum Wire made red hot by a Galvanic Battery.—The peculiarity of the method rests principally upon the faculty of the red hot platinum wire to divide the textures as surely as a bistoury, and to do this without causing any, or but a very trifling hemorrhage. In fistula in ano, for instance, it is found that the charred surfaces throw off the eschar in a few days; that the healing process, without the aid of lint, commences at the fundus of the wounds, and that the whole tract soon closes up.

The patient brought into the theatre was a man about thirty, who had been suffering for some time from fistula in ano. Various means had been resorted to in order to promote the healing of the tract, but to no purpose. Mr. Marshall therefore determined to lay open the intestine and fistula in the following manner: A battery of six strong cast-iron cells, with zinc plates and copper connections, was disposed close to the operating table; and the conductors (somewhat *thick* copper rods, to avoid the loss of galvanic force), were rendered flexible for about five or six inches, by an elastic tube filled with mercury. The pole held by the operator's right hand was in immediate connection with the battery, but on the left side the current could be completed or interrupted by the intervention of a capsule filled with mercury. The extremities of the poles, slightly covered with mercury, were then connected with short holders, to which a platinum wire could easily be fixed, and when the assistant dipped the left pole into the mercury, the wire was seen almost immediately to become red hot.

Now the great advantage of using the galvanic force in this manner is, that the wire may be disposed upon the affected parts whilst cold; it is

easily adapted by being flexible, and when it is so placed as to answer the operator's purpose, the circuit is completed, and the effect produced in the direction which the surgeon gives to the wire.

The patient having been put under the influence of chloroform, Mr. Marshall introduced one end of the platinum wire into the fistulous tract, and made it reappear at the anus; the two ends were then connected with the poles, the circuit completed, the wire became red hot, and was gently brought downward, dividing all the interposed tissues, and cauterizing them at the same time so effectually as to prevent any amount of hemorrhage. The only dressing used was a piece of lint dipped in cold water, applied externally.

Mr. Marshall has found from previous cases, both in private and hospital practice, that the whole tract heals very rapidly from the bottom after the casting off of the eschar, which separation generally takes place in a few days.

Mr. Marshall thought that the method just described would eventually be peculiarly applicable to fibrous tumors of the uterus, and stated that he is having a battery constructed, where the cells would be managed in such a manner as to be quite ready for use by being dipped into the diluted acid; that the apparatus might then be put entirely out of the patient's sight by being placed under a seat or sofa, and that nothing but the conductors need be seen.

Mr. Marshall first used the galvanic force in the manner above described, in a very obstinate case of fistulous opening in the cheek of a young man, which had refused to cicatrize under every imaginable kind of treatment. As the tract was about one inch and three quarters long, and somewhat sinuous, a wire heated in the usual manner must get almost cold before it reached the whole extent of the tract; this objection was, however, entirely removed by the use of a wire introduced cold, and then heated by the galvanic battery. The success obtained in this latter case, which had almost been despaired of, was the first step in the series of cases which Mr. Marshall has since treated with very favorable results.

Part xxiii., p. 315.

Fistulae—Use of Nitric Acid.—[The frequently unfortunate and unsatisfactory results of the operation for the cure of fistula in ano, suggested the following plan to Mr. Evans:]

A blunt-pointed silver probe, five inches in length (the sinus itself in this case being four inches in depth), was inserted into the wound, having previously been dipped in dilute nitric acid (one part of acid to one part of water), and suffered to remain there a minute. That this had a strong cauterizing effect, I knew from the pain it occasioned. Thus far the result was desirable; but in consequence of the destruction of the silver probes by the acid, and the impossibility of using them more than three or four times, I had some copper ones made, and using them in the same manner, only thus substituting a nitrate of copper for a nitrate of silver, and I think with a better effect. Under this treatment I was pleased to see the depth of the sinus daily decrease by the gradual filling of it with healthy granulations from the bottom. This was continued nearly every day for two months. The patient is at the present time perfectly sound.

Part xxiv., p. 211.

Fistula in Ano.—Mr. Curling remarks that when the fistulous opening

in the rectum is more than an inch and a half above the external sphincter, the division cannot be made without risk of dangerous hemorrhage, and in such cases recommends the employment of ligature in preference to division by the knife.

Part xxiv., p. 217.

Fistula in Ano.—Make a paste of chloride of zinc, with flour and water, and this being entangled in a grooved probe, pass it up to the opening in the rectum. The point of a second probe or instrument is then to be placed in the groove and passed just sufficiently high, that by being retained in that position while the armed probe is withdrawn, the groove may be cleansed of the paste. This may be repeated every second or third day.

Part xxvi., p. 191.

Fistula in Ano.—After the incision of fistula, to prevent the edges of the wound from uniting, touch them with the nitrate of silver. By this plan there is no necessity for interposing tents, lint, or other material. The application may be made at first every, and then every other morning.

Part xxvii., p. 188.

Fistula in Ano.—Wherever a fistula has existed six weeks or two months, you must suppose that an internal opening exists. The tract that leads to it may be tortuous, but you must search for it again and again. You may introduce a bent probe up the fistula, and bring it out at the anus, and then cut out the probe, if you like, with the bistoury. The intervening parts are generally very superficial.

A piece of lint is placed in the wound at the time of the operation, and the only other dressing required is washing the part occasionally with soap and water for a few days.

Part xxxi., p. 186.

Fistula in Ano.—After the division of the sphincter, there is often a relaxed condition of the part, so as to allow the rectum to protrude for several inches. The best treatment for this is the application of nitric acid; but the prolapse may be entirely prevented taking place, by applying the nitric acid around the margins of the sphincter on the fourth day after the operation, and before the relaxation takes place.

Part xxxii., p. 181.

Fistula in Ano.—The best injection for this consists of half a drachm of the nitric oxide of mercury, and half an ounce each of mucilage and distilled water.

To avoid the danger of wounding the finger, when penetrating the bowel with the bistoury, introduce a glass-plated speculum, having an incisura half an inch wide, and extending two and a half inches from the orifices of the instrument and the bowel. Cut down upon this along a director, with a sharp-pointed bistoury.

Part xxxiv., p. 163.

Fistula in Ano.—By the ordinary means used in the cure of this fundamental nuisance, confinement to the house, if not to bed, is generally necessary. The ligature may be used with the greatest advantage when it is desirable that business should not be interrupted. The instruments required are two very fine silver probes seven inches long; one probe blunt, the other sharp-pointed at one end, and both perforated at the other. Having previously prepared your patient by administering an aperient, introduce the blunt-pointed probe, armed with silk, into the external opening of the fistula, pass the index finger into the rectum, search for the opening, seize

the extremity of the probe (which is easily bent), draw it through the anus, and, tying the ligature, you complete the operation. Three cases are related; in the first, the ligature came away in fourteen, in the second, in twenty-one days. In one case it is mentioned that the patient, a professional man, during the process of cure, continued to discharge the greater part of his duties without intermission. *Part xxxix., p. 183.*

Use of the Écraseur.—The Écraseur is peculiarly useful in the treatment of anal fistula, especially when we have to do with the severer forms of the disease occurring in broken-down or debilitated constitutions, in whom we find, along with the local disease, a strong tendency to, if not the actual existence of organic lesion. The form of instrument made by M. Charrière is preferable to that originally introduced; one end of the chain is fixed and the other is tightened by a nut, working on a fine screw, each turn of which brings in one tenth of a link; thus the process of crushing is smooth, and perfectly free from jerking or laceration. The only difficulty experienced is in the introduction of the chain, but this may be readily accomplished by first passing a piece of silk cord, by means of an eyed probe, bent to a proper curve. By means of the cord so passed, the chain may be readily introduced. *Part xxxix., p. 184.*

Double Fistula in Ano.—Avoid multiple divisions through the sphincter ani, as there is no doubt but that if there are two or more divisions of the sphincter muscle, subsequent union does not admit of such an amount of control over its functions as when only one is made. In some cases, the skin between the two fistulæ may be divided, and then this common cavity connected with the gut by a single division of the sphincter. *Part xl., p. 113.*

Fistula and Sinus.—Many or most cases of fistula in ano and sinus from other causes may be cured by injection with a small quantity of a very strong solution of iodine, and this mode of treatment, though not superseding the use of the knife, should be tried before having recourse to the latter. The solutions used may be 3ss., 3j., or 3ij. to the ounce of spirit of wine, with a little sulphuric ether as a quick solvent of the iodine, or if it is not wished to keep so large a quantity ready prepared, from gr. iiss. to gr. xv. may be dissolved in 3j. of sulphuric ether, just when a case requires the treatment. A very fine gold nozzle may be fitted to Dr. Alex. Wood's hypodermic injection syringe, and you have everything complete. Supposing it to be a case of fistula in ano, you would proceed as follows: First clear out the fistula by injecting with a little plain tepid water, then, having dilated the rectum with Weiss's female dilator, and inserted a little cotton-wool into the rectum to absorb any superfluous injection, and so preserve the rectal mucous membrane, insert the nozzle of the syringe, previously charged with the stronger injection, into the fistula a little way, and inject about 30 minims into the part. A suppository containing half a grain of morphia may then be introduced, and the operation is complete. Dr. Skinner describes it as an operation which in his hands has rarely failed. *Part xl., p. 114.*

FISTULÆ IN PERINEO.

After pointing out the necessity for freely dilating the natural passage, before the fistula can have a chance of closing, Sir Benjamin Brodie adds his latest experience. "I formerly," says he, "have advised the patient never to void his urine without the aid of the

catheter; but I am now inclined to believe that the irritation thus kept up tends, on the whole, to delay rather than to expedite the cure. At other times I have kept the patient in bed for some weeks, with an elastic gum catheter constantly in the urethra and bladder; but I cannot say that, with my present experience, I have much more faith in this mode of treatment than in that which I mentioned before. After a few days the urine generally begins to flow by the side of the catheter, which does not therefore answer the purpose for which it was introduced, of preventing its escape by the sinus. Then, in many cases, the catheter causes an abundant suppuration of the urethra; and the purulent discharge, finding its way into the sinus, prevents it from closing as much as it would be prevented by the contact of the urine.

Blind Fistula in Perineo.—Sir Benjamin Brodie advises the following method of treatment: Watch for the opportunity when matter is collected in it, and then establish an external opening by dividing the integuments over it with a lancet, so as to convert it into a fistula of the ordinary kind. There are some of these cases, however, the treatment of which requires a more particular explanation. A patient may apply to you who, perhaps, has had gonorrhœa formerly, followed by a slight obstruction of the urethra, complaining at the same time of a discharge from the urethra, which he calls an obstinate gleet. You examine the perineum, and you find in it a small tumor, not larger than a horse-bean or filbert. It is at some distance from the surface, and the patient says that it has been coëxistent with the gleet, and that it is sometimes inflamed and tender. Now this little tumor indicates the existence of a blind fistula. There is a small orifice in the urethra, and a narrow channel leading from it into the centre of the tumor; and every time that the urine flows, a very small quantity finds its way into the channel, escaping from it immediately afterwards by regurgitation into the urethra. In consequence of the smallness of the cavity, and the quantity of solid matter deposited on its outside, the fluctuation of fluid in it is not perceptible. I have known this state of things to continue, producing more or less occasional inconvenience for many years. The first thing necessary to the cure, is to make an opening in the perineum leading into the cavity in the centre of the tumor. But this may not be very easily accomplished, on account of the smallness of the cavity. You should introduce the lancet somewhat obliquely, so as to divide the tumor as nearly as possible through its centre. Then introduce some lint, so as to prevent the wound uniting by the first intention. After three or four days you may remove the lint, and then you will ascertain whether you have done what was required, by observing whether, when the patient voids his urine, any portion of it flows through the opening which you have made. If this be the case, nothing further is required than that the stricture should be dilated in the usual way. If, however, no urine flows through the opening, you may proceed thus: introduce a piece of caustic potash through the wound into the centre of the tumor, so as to make a considerable slough. A portion of the tumor being thus destroyed, the probability is that, when the slough has separated, it will be found that the central cavity is exposed, and that you have accomplished the object which you had in view.

Part vi., p. 100.

Perineal Fistula.—If the application of caustic or the actual cautery fail to keep the orifice raw, so that the granulations cannot close it, a tal-

cotian operation should be tried, as modified by Dieffenbach, which consists in not turning the flap round or bring the edges together, but of separating two little lateral flaps from the penis, at the sides of the fistulous opening.

If calculi are passing through the urethra, and lodge in front of the scrotum, endeavor to draw them forward to the orifice, which, by a little enlargement, will allow them to come out. If not able to be brought forward, try to pass them back, so as to cut on them in the perineum behind the scrotum.

Part xiv., p. 210.

Perineal Fistulae.—These are sometimes very troublesome to heal. If the actual cautery fail, the injection of acetum lyttæ twice a week will often procure perfect closure.

Part xxxiii., p. 209.

Perineal Fistula.—If it does not depend upon stricture, touch the edges of the opening with a solid stick of nitrate of silver every second day; in the course of a few weeks, if the patient be otherwise in good health, it will gradually heal without any other means whatever.

Part xxxv., p. 134.

RECTO-URETHRAL FISTULA.

Curious Case.—[A man, fifty-nine years of age, had been for some time subject to difficulty in voiding feces, and found that flatus and feculent matter passed by the urethra. On examination a stricture was found about three inches up the rectum, and it was supposed that there was a fistulous communication between the rectum and the membranous portion of the urethra. By Sir B. Brodie's advice no treatment was adopted except the daily passage of a rectum bougie. Mr. Giraud says:]

An improvement slowly took place in the state of the rectum, and of late the calibre of the gut has become almost restored to its natural size. fistulous communication between the rectum and the urethra remains the same, and a few weeks ago an unusual irritation was felt in the urethra, and very soon something alive made its appearance at the orifice: the patient removed it with his finger. On placing it in a wineglass half filled with warm water, the movements it exhibited showed great activity, and by the alternate contraction and dilatation of its rings, and the protrusion of a vaginated proboscis, it soon arrived at the edge of the glass. It appears to be a species of echinorhyncus. Questions may arise, whether a similar creature to this might have occasioned the fistulous opening between the rectum and the urethra, and whether the stricture in the gut, which is now nearly at an end, might not have originated from the local irritation.

Part xvii., p. 172.

RECTO-VAGINAL FISTULA.

[Speaking of cases of fistulous opening between the rectum and vagina, Mr. Cooper says:]

I am acquainted with a case in which a lady was the subject of this lesion; and, after every attempt had been made to sew up the fistulous openings of rectum and vagina, and other plastic operations had been ineffectually resorted to, Mr. Copland restored the patient to health by the mere division of the sphincter ani, which not only prevented the retention of the feces within the rectum, but, at the same time, precluded the necessity for the action of the levator ani muscle. The contents of the rectum, no longer meeting, therefore, with any obstruction to their

passage from the anus, had no tendency to pass into the vagina, the *fistula* in which immediately healed.

A lady was lately under my care, who was the subject of a fistulous opening from the rectum into the vulva, through which the feces in part escaped.

The mode I adopted was, to divide the fibres of the sphincter ani muscle, and pass a probe covered with potassa fusa through the sinus, so as perfectly to destroy the mucous surface of the fistula. As the granulations thus produced did not seem to fill up the opening, I brought the surfaces of the fistula in contact by means of a ligature, which came away in a few days, and the opening into the vulva was much diminished, but still the communication between the two organs was not obliterated. I then daily applied the tincture of lytta to the granulating surfaces, and the lady left London, although it could not be said perfectly cured, with the prospect of the granulations becoming ultimately converted into permanent tissue.

These cases, as well as those of lesions between the bladder and vagina, are most difficult to cure; and I believe that, unless the division of the sphincter ani itself promotes their obliteration, although other means may be somewhat accessory, they are never sufficient to produce cure. My colleague, Dr. Lever, has had several cases of recto-vaginal and vesico-vaginal fistulae, which he has attempted to obliterate by plastic operations, and by sutures, caustic, and actual cautery: the result of his experience is, however, that very few persons are ever permanently cured, although, by means of actual cautery, he has frequently reduced the abnormal openings to the size of a pin's head, but I believe that only in one or two cases has he succeeded in producing a permanent cure. *Part xviii., p. 196.*

Fistulous Communications between the Rectum and the Vagina.—The extremity of the septum between the vagina and rectum occasionally becomes lacerated in labor, the patient being afterward unable to retain her feces. The cure of this distressing infirmity may be effected by paring the edges of the gap, and, after division of the external sphincter on each side, bringing them together with sutures, which should be tied in the vagina. An opiate afterward will keep the bowels at rest for two or three days, and the sutures may be taken out on the third day. The operation does not always succeed, but the double division of the sphincter much lessens the chances of failure. *Part xxiv., p. 212.*

URETHRAL FISTULA.

At a meeting of the Académie de Médecine, M. Ricord presented a patient whom he had cured of a urethral fistula, situated at the inferior part of the penis, by means of an opening made into the membranous portion of the urethra, through which he introduced a catheter into the bladder. This catheter he allowed to remain: and when the urine had ceased to flow through the primary fistula (which was not till after two months had elapsed), M. Ricord revived its edges, and then united them with sutures. When the union was completed, the urine again took its normal course, and the opening made in the perineum soon after cicatrized. *Part iv., p. 106.*

Fistula—Urinary.—Distinguish that arising from a local cause, from that depending on constitutional states. In the first form, cure the stricture, which is usually the cause of the disease, by introducing a catheter

every two or three days; if this fail, let it be worn constantly; then try what effect its removal has; lastly, resort to operation, either by passing a staff down to the stricture, cutting down on the staff, and then dividing the stricture, or by dilating the fistula till we can pass a small gum catheter into the bladder, and then proceeding with the further steps of the operation; or by careful incision into the urethra behind the stricture, followed by the division of the latter. In the second, or *constitutional* form, restore the general health, and as local treatment, direct the patient to make pressure upon the fistula when he makes water; or introduce the catheter cautiously and at long intervals. *Part xvi., p. 196.*

Urinary Fistula.—In a great number of cases, nothing else is required than to dilate fully the urethra, and the fistulæ will heal of themselves; there need be no meddling with them—the less they are touched the better. But in weak constitutions, or when the fistula passes through much indurated tissue, we must improve the general health by good diet, tonics, and cod-liver oil; and, locally, we must stimulate the walls of the fistula, so as to bring about adhesion of opposing surfaces, by applying a strong tincture of cantharides, by means of a camel-hair pencil, or by touching with a probe coated with nitrate of silver. If these fail, lay them open, so that they may heal up soundly from the bottom. *Part xxxiii., p. 196.*

Urinary Fistula.—If the opening be small, and situated in front of the scrotum, you will often succeed in closing it by the application of strong nitric acid to the edge of the fistulous orifice and upon the skin around it, even when the hare-lip operation has failed. It may be applied several times in the course of several months. Nitrate of silver, or strong tincture of cantharides, has been successfully employed in the same manner. The tincture of cantharides may be applied three or four times in twenty-four hours: the loose cuticle should then be scraped out and the tincture again applied; this must be occasionally repeated, until the granulations appear healthy, and bid fair to close the aperture.

Dieffenbach's method of treating these fistulous openings, when small, was to pass a large catheter into the bladder, to revive the edges of the opening, to detach the skin from the subjacent structures for half an inch in every direction, and to bring the free borders together in the median line by means of the twisted suture. This done, two incisions were made, one on each side, to relieve tension. This plan he afterward modified by dissecting beneath the skin from the outlying lines of incision toward the fistulous opening, so as to convert the part into a bridge, which might avoid contact with the urine which escaped along the course of the catheter. Success cannot be expected if the fistulous opening be more than one-third of an inch in any direction. M. Nélaton prefers to make the outlying incisions about an inch above and below the opening, which is supposed to afford a better chance for the urine to escape. Again, he has proposed not to close the openings by sutures at all, but to allow it to contract by itself. *Part xxxiv., p. 177.*

URETHRO-VAGINAL FISTULA.

In cases of this kind, when the usual modes of treatment fail, the galvanic cauterium may be very useful; it possesses many advantages over the ordinary red-hot irons, and can be very readily applied. An ordinary battery is placed on a chair by the side of the bed; the two wires are then arranged, and when the circle is completed, the

coil or bead of platinum at the end of the wire will be of a white heat. The speculum being introduced, the edges of the fistula must be touched with the little pea of fire. It will not produce the least pain, which is the advantage of employing a white heat. *Part xxxii., p. 240.*

Urethro-Vaginal Fistula.—[In the case which was the subject of the present operation, the last confinement, twelve weeks before admission to the Samaritan Hospital, under the care of Mr. Spencer Wells, had been severe and tedious.]

Since the labor the woman had been quite incapable of retaining any urine; and her labia, perineum, and thighs were much excoriated by the constant dribbling. On examination, a fistulous opening, hardly admitting a uterine sound, and just admitting a No. 3 catheter, was found, an inch or rather more from the meatus, establishing a communication between the vagina and bladder, or rather with the urethra just at its junction with the neck of the bladder. The opening was situated at the bottom of a deep fold of the vaginal mucous membrane. The edges were formed of flabby reddish granulations. These Mr. Wells removed, in order to make the surface to be brought into apposition even and smooth, and then passed a silver wire suture by means of an ordinary curved needle through the vaginal mucous membrane, carrying it down to the mucous membrane lining the urethra, but without perforating this membrane. The wire was bent until the edges of the opening were closely approximated, fastened by a split shot, and the ends were cut off. Mr. Wells thought that the presence of a catheter in the urethra quite as likely to do harm as good, and preferred trying at first what the effect of simple suture would be. The woman was not confined to bed. A vaginal douche of cold water was ordered night and morning.

The effect of the little operation was immediate. The woman at once recovered the power of retaining her urine, although only for a short time, for the first day or two. On the fourth day she said she could retain it for three or four hours. Mr. Wells removed the suture on the sixth day, and found the fistula perfectly closed. The cicatrix, though delicate, was quite perfect; and the patient said her power of retaining and passing the urine was as complete as it ever had been.

This is the second case Mr. Wells has met with in which a single suture sufficed for the cure of a very small fistula near the meatus. In the first case a silk suture was used, which was left to cut itself out—a catheter being kept in the bladder for several days.

The application found most generally useful at the Samaritan Hospital in relieving the excoriation which is so distressing in these cases, is a mixture of equal parts of zinc ointment and glycerine. *Part xxxviii., p. 162.*

UTERO-VESICAL FISTULA.

Mr. Harrington has met with a case of a disease mentioned in books, but not described, as utero-vesical fistula. The patient was forty-one years of age, and had been delivered of her last child, the seventh, five years before. The labor was severe and protracted, and instrumental aid required to complete it. Retention of urine followed, for which the catheter was required for thirteen days. She then felt something give way—and the urine flowed away, and continued to do so for upward of five years. The horrors of her condition during this period are

indescribable. Day and night the urine dribbled away; not a drop passed through its natural outlet; while the quantity of secretion was augmented by the constant irritation. Sleep was almost denied her; three or four times a night had her dripping garments to be changed. On repeated examination by various surgeons, no fistulous opening could be discovered, and incontinence from weakness was, therefore, supposed to be the cause. Mr. Harrington suspecting the cause, examined her with the greatest care, but without success. But one day, exploring with a catheter in the bladder, concavity downward, and a finger in the os uteri, the two came into contact. A communication between the fundus of the bladder and the uterus was thus discovered, large enough to admit with ease a No. 6 male catheter.

It occurred to me to inquire what would be the effect of a skein of silk passed through the opening, allowed to remain there a certain time, temporarily to stop, and produce a degree of inflammation sufficient permanently to close its orifice. And, also, whether this desirable termination would not be most materially facilitated, when that irritation had been produced, by withdrawing the threads one by one, with a few days' interval, that the orifice might gradually contract around the threads. That they should be reduced in size also, as well as number; so that at last there might be nothing left to contract around, and the orifice be entirely obliterated. The more solid tissue of the uterus, rather than the lax texture of the vesico-vaginal septum, perhaps favored the attempt; while the facility of imbuing the threads with any triable sanative application increased the possibility of success. With this end in view, I proceeded to operate in the following manner: A Brodie's catheter, armed with a long piece of twine, was introduced into the bladder, concavity downward, and being guided by a finger within the os uteri, I readily found the rupture, passed the instrument through into the vagina, seized the thread, and then withdrew the catheter; thus leaving one end of the twine hanging from the urethra, and the other from the vagina. To the urethral extremity I tied a skein of six threads of glover's silk, oiled them, and drawing at the vaginal extremity, dragged the silk through the fistula, and then tied the urethral and vaginal ends together.

[During the three subsequent months, the size of the thread was changed three times, until it was reduced as small as was compatible with strength and durability. Mr. H. now endeavored to close the orifice entirely. He therefore withdrew the last thread, just after the irritation of the menstrual period had ceased, when it seemed probable that ultimate union would take place, if ever it did. The experiment was unsuccessful; in twenty-five days the dribbling was as bad as ever, and he was compelled to introduce four large threads, which were soon reduced to one, which she still wears. No inconvenience is produced by it; it merely requires to be drawn down once a day to cleanse it, and for the last three years, by the use of this simple remedy, not a drop of urine has escaped.] *Part xii., p. 223.*

VESICO-VAGINAL FISTULA.

Dr. Keith, of Aberdeen, has had a very singular case, which may be the means of suggesting some practical improvement in those cases in which all the ordinary methods have failed. His patient had such a large fistula of this kind, that for seven years she plugged it up with a *pint bottle cork*, and was thus enabled to pass her time with comparative comfort. The cork, however, at last slipped into

the bladder, and the urine again passed through the orifice. After a time, however, she began to suffer from symptoms of stone, and this body seemed to act like a *bullet valve* to the fistula, for the urine again began to pass by the urethra, and the fistula in about nine months became considerably contracted in diameter. She suffered so severely from the stone, however, that it was necessary to crush and evacuate it. The urine again passed through the fistulous orifice, which, however, had become sufficiently small to allow of a button-headed cautery, at a white heat, to be applied so as to cause a slough, including the edge of the false opening all round. This checked the passage of urine, and in six days the cautery was reapplied, and again in sixteen days. In three weeks there was an oozing of urine, and the cautery was again applied as before. This cured the case completely. From observing the peculiarities of this case, Dr. Keith suggests that in those large fistulous orifices, which are too wide to expect success from cauterization, we should employ some artificial bullet-valve of a smooth and unirritating nature, and of sufficient weight to keep the orifice blocked up from the bladder, so as to favor the contraction of the edges of the wound, and for this purpose he recommends a small thin bulb or bag of India-rubber, filled with mercury. Should incrustation happen in the progress of the cure, a squeeze with a screw lithotrite, or percussor, or a long œsophagus forceps, would throw it off, and at last when the opening had contracted to such a size as to admit of its ready cure by the cautery, the thin bag could be easily burst or punctured, and then withdrawn by the urethra.

In a former article we referred to Mr. Liston's practice of allowing a long interval to elapse between each cauterization, in order to give the parts after each operation a fair chance of contracting as much as possible: and we know, from examples of burns, to what a long period contraction may be continued if left alone. This, however, will be chiefly required when the orifice of the fistula is large, as in the above case of Dr. Keith's; and we think that if his suggestion could be carried out, a great deal of time and misery might occasionally be saved; as it will be seen that in his case a fistula contracted in less than nine months from the size of a pint bottle cork to that of a No. 16 bougie.

Part ix., p. 118.

Autoplastic Operation for Vesico-Vaginal Fistula.—M. Jobert has proposed and executed successfully a new plan for the cure of this distressing malady. The occlusion of such fistulæ by means of autoplastic operations is necessarily attended with great difficulty, and in the hands of most surgeons would probably fail in the great majority of instances. The method now proposed by M. Jobert is termed "*autoplastie par glissement*." It consists in loosening the connections of the posterior wall of the bladder by means of an incision made through the mucous membrane across the anterior part of the cervix uteri. In the words of M. Jobert—"This operation consists in making a semicircular incision across the anterior part of the cervix uteri, at the point where the latter is joined by the vagina. The dissection is made from below upward, and the edge of the bistoury is kept directed toward the cervix, so as to protect the bladder from danger. Immediately after this incision and the dissection, which easily isolates the base of the bladder, retraction of the anterior portion of the vagina takes place, and displacement forward of the posterior region of the bladder. The apposition and re-union of the edges of the fistula then become easy; and thus the reparation of a very large breach may be

accomplished." The edges of the fistula, which are then found to approximate each other much more easily, are pared and united by suture. A catheter is to be retained permanently in the urethra for the first two or three days, and is afterward to be very frequently introduced to prevent any accumulation of urine in the cavity of the bladder. *Part xv., p. 233.*

Treatment of Vesico-Vaginal Fistula by Creasote.—A vesico-vaginal fistula, subsequent to artificial labor, having been treated with lapis infernalis seventeen times without any success, Emmert proceeded to remove the gangrenous scab produced by the last cauterization, after which he touched the fistular opening to a great extent by means of a pencil-brush immersed in creasote. The success was most surprising. The new scab was so firm as to enable the patient to retain her urine the whole day, and to micturate without becoming moist. The detachment also occurred much later than after the application of other caustics, and when effected, the urine flowed in far less quantity from the somewhat diminished fistula. A second application of creasote, six days afterward, induced a perfect cure of the fistula, and no urine has passed from it during two months which have since elapsed. A fortnight after the last cauterization, Emmert found the fistula perfectly cicatrized, its previous existence being marked only by a bluish red streak, two lines in length. He therefore declares creasote to be the best application in such cases, the nitrate of silver being too feeble, and the concentrated acids too energetic in their action. *Part xvi., p. 201.*

Vesico-Vaginal Fistula.—Galvanic Cautery.—Having exposed the opening by a proper speculum, Mr. Marshall applied the galvanic cautery, at a white heat, over the whole of the exposed edge. The operation was repeated seven times, at intervals varying from three to eight weeks. The opening would originally have admitted three fingers, but after every operation the size gradually diminished, until at length the patient could fulfill her duties comfortably. *Part xxviii., p. 273.*

Vesico-Vaginal Fistula.—Place the patient under chloroform, and in the position for lithotomy. The legs being held by assistants, and the sides and back of the vagina being held back by retractors, bring the fistulous opening into view. This will be aided by seizing the bladder just at the junction of its neck with the body, and holding it firmly upward and forward. The margin of the opening, for about the eighth of an inch in depth, must now be divided completely round with a sharp knife. Three or more silver wires, about eighteen inches long, are now to be passed by means of the porte-aiguille, and brought together by the instrument, thus leaving the parts in apposition. A silver button must then be carefully passed over the end of each double suture, and a perforated shot passed over each wire and pressed down upon the button, and then firmly pressed by a pair of long strong forceps. The wires must then be cut off close to the shot. Place the patient in bed, on a water cushion, on her side, with a catheter inserted into the bladder and allowed to remain there. Opium, with generous diet and wine, will be required. *Part xxxv., p. 226.*

Vesico-Vaginal Fistula.—Support the patient as if on her hands and knees. Expose the vagina by Dr. Sims's retractor, make a curved cut through the mucous membrane of the vagina one-third of an inch behind the posterior border of the opening into the bladder; the mucous membrane behind this cut must be raised, so as to form a flap half an inch deep; the ends of this cut are connected by another similar one, about

should lie on her side.

Vesico-Vaginal Fistula.—The best time at which operation for its cure is within three months, for after that time the bladder takes on an unhealthy action and becomes indurated, and readily adheres; the bladder also loses its capacity for being remedied. To obtain a raw surface, Mr. Baker has removed the mucous membrane from the margin of the fistula, and the face of the vagina. Dr. Pancoast's plan is to split the fistula to the extent of half an inch, and to pass a wedge-shaped tongue, which is inserted into the groove on the posterior border. A modification of these, which is to split the entire margin of the fistula all round to the extent of four lines, to open the flaps out, and bring them together by suture. The needle, armed with a double ligature, is passed through the anterior flap, then through the posterior flap, leaving the ligature to which the quill or bougie may be attached. Points to be noticed in this operation are, 1. To split the areolar tissue. 2. To pass the ligatures sufficiently far apart. 3. To get the ligatures too tight. 4. To get rid of the urine by keeping Sims's S-shaped catheter always in the bladder.

Vesico-Vaginal Fistula.—When ligatures are used in the treatment of this disease, penetration by them of the vesical mucous membrane must be carefully avoided.

Artificial Cuticle.—A mixture of collodion and oil of turpentine is used with great success when the skin is abraded by irritation, as in cases of vesico-vaginal fistula. In these cases it may be used on the excoriated skin of the perineum and thighs; it forms a thin, elastic, and shining or varnish which resists the action of the urine for some time.

Vesico-Vaginal Fistula.—The greatest improvement

elbows and knees, or simply on her left side, and the use of a duck-bill speculum, by which a flood of light is thrown upon the exposed fistula. For paring the edges of the opening, he uses a straight spear-shaped knife alone, and in using it gives the advice that the edges be levelled off to a considerable distance from the vesical margin, so as to leave as large a surface for adhesion as possible—doing this very slowly and carefully, seeing that the least bit of mucous membrane would prevent the much-desired union by the first intention. For passing the iron-wire thread sutures, the needle used is hollow, and the wire, after the passage of the needle through the lips of the fistula, is pushed through the tube, and seized by forceps; the tubular needle is then withdrawn. The needle should be entered from below, and made to emerge above, nearly half an inch on either side of the opening, in order that the edges may be held strongly and steadily. The vesical mucous membrane must never be perforated by the sutures. To consolidate the lips of the fistula and surrounding parts, and keep them perfectly at rest, use an iron-wire splint made by twisting together ten or fifteen strands of the iron-thread into a cord, the ends of which are then doubled over each other, and plaited round into an ovoid or circular form. A number of openings are made among the threads by a boring instrument, through which the ends of the sutures are passed and the splint passed up to the opening and there firmly applied, the sutures being twisted together and cut off short. Dr. S. considers this preferable to Bozeman's button suture, as it precludes both longitudinal and transverse movement in the wound, whilst Bozeman's allows of slight transverse motion. This splint is removed about the ninth or tenth day. In the after-treatment much stress is laid upon the administration, for some time, of such doses of opium or morphia as shall suffice to keep the patient fully under the influence of the drug. *Part xxxix., p. 298.*

FISTULOUS OPENINGS.

Cheek, Fistulous Opening in.—In a case of this kind, a platinum wire, heated by electricity, was passed through the fistulous opening so as to produce a slough. This caused little pain, and ultimately produced a cure of the disease. *Part xxiv., p. 204.*

Fistulous Openings about the Jaws and Neck.—In sores and fistulae in this situation, always carefully look out for old carious teeth; sometimes an old stump, with or without a sharp fang, will be causing all the mischief, and by extracting this, the sore will heal rapidly.

These are frequently connected with carious teeth, and are never cured until the irritating body is removed; but they may also be from the irritation produced by wisdom teeth, when there is scarcely room for them; in these cases, the remedy is, to remove the second molar, and the opening soon heals up. *Part xxxv., p. 95.*

Fistulous Opening in the Testicle.—W. H.—, aged 30, applied with strumous disease of the testicle. Iodine and iron were given, which arrested the progress of the disease, and produced a corresponding improvement in his health. The outward form of the testicle was retained, but with an open sinus of an inch and a half in length in an oblique direction from the apex, and discharging a thin, white, glairy fluid, peculiar to fistulae. A probe previously dipped into nitric acid, was inserted into the fistula, and effected a cure. *Vide "Fistula in Ano." Part xxiv., p. 211.*

FLATULENCE.

Flatulence.—Flatulence is often owing to an liver, and a deficiency of bile in the intestines. hepatic secretion tends to remove flatulence of drops of colchicum wine are often effectual. Small doses of mercury. An anti-dinner and an evening of the blue pill and three of the extract of rhubarb good effect in many cases of this kind, in which, although there is slight constipation, yellow-furred tongue, ill-taste, gastro-duodenitis, there is often, from the vascular denal mucous membrane, a constriction, and son rarely occlusion of the mouth of the ductus communis of course, interruption to the discharge of bile; silent eructations, etc., which accompany gastro-duodenitis, unlikely that the pancreatic duct and secretion in a similar way.

Treatment.—When the tongue is pale, when there is no pressure at the epigastrium, or in the right hypochondrium, no thirst, no dry heat of skin, and no quickness of carminatives, bitters, and even stimulants. Thus there is to use freely any of the following waters: cinnamon, peppermint, pennyroyal, mint, Cologne, lavender balm; to these, some of the respective tinctures of carminative waters just named, one or more of which may be given—chamomile, quassia, columba, absinthium. To be added valerian, castoreum, and camphor. Assisting in the bowels, assafoetida, or oil of turpentine in the mouth or in injection, the latter in injection, else, excepting, perhaps the infusion and spirit of

Secondly. If flatulence is accompanied with a red tongue and fauces, with thirst, heat of the stomach, scanty and high colored urine, heartburn, etc., signs of inflammatory irritation of the gastro-duodenum, then alteratives are clearly indicated, or rather such as will alter the secretions of the mucous membrane; these are potassio-tartrate of antimony, the various preparations of iodine, nitrate of silver. These we would use successively, almost in the order in which we name them. A great variety of other means may be tried, and used, in those cases in which flatulence is accompanied with a fullness of the liver, as well as with gastric colic, colchicum, for example, may be given with a few drops of potass, or if there are acid eructations and heartburn, magnesia; the infusion or tincture of arnica may be used in combination, and so may the powder and extract of arnica. Instead of perplexing our minds with the confusion of whose classifications betray they had no clear and proper treatment of flatulence, the simple point to be kept in view is, whether flatulence (always a morbid condition) accompanied with inflammatory irritation, is

stomachic debility—and according as we decide these queries, we adopt the former or latter modes of treatment above mentioned.

Part xvii., p. 113.

Use of Acetate of Lead in Flatulent Distention of the Intestines.—[A patient having taken active purgatives for the relief of an attack of colic, and the bowels having been freely acted upon, was seized with distressing pain and cramps, and distention of the belly from flatus. Vomiting came on, and hiccough, and continued together with the pain and distention in spite of opiates, turpentine injections, calomel and opium, castor-oil, etc.; and the case appeared desperate. Under these circumstances, Dr. Baddeley says,]

Feeling convinced in my own mind that, under the absence of inflammation, *this distention proceeded from want of tone in the muscular fibres of the intestinal canal*, and their consequent failure of power to contract and expel the increased generation of air, I ordered large doses of alum, persisting at the same time, in the daily injection of turpentine, which appeared to give more relief than any other remedy which was applied. Again disappointed, however, in the result, and remembering the strong advocacy by Dr. Graves, of Dublin, of the acetate of lead in tympanites, I determined to give it a fair trial, though not without considerable apprehension of its constipating effects.

I prescribed three grains of the superacetate of lead, with the sixth of a grain of acetate of morphia, in a pill every four hours, and a continuance of the turpentine enema every evening. The excellent effects of this combination soon began to manifest themselves by the comparative suppleness of the abdomen, the expulsion of a large quantity of air, the subsidence of the cramps, spasms, and pain, and even by copious dejections. The hiccough gradually declined, the appetite began to return, and convalescence was at once established.

Part xvii., p. 114.

FOOD.

For Children.—Gumprecht advises an ounce of finely-scraped full-grown carrot to be mixed with two cupfuls of cold soft water, and allowed to stand for twelve hours, being frequently stirred during this period. The fluid portion is then to be strained off, what remains being pressed to yield some more. This fluid is then to be mixed with the proper quantity of biscuit powder, or bruised crust of bread, or arrowroot, etc., and the pap placed over a slow fire, until it begins to bubble. Care must be taken that the heating be not pushed so far as to cause boiling, or the albumen will coagulate. After its removal from the fire, it is to be sweetened with a due amount of white sugar. Dr. Gumprecht states that by mixing the carrot juice with biscuit, crust of bread, or arrowroot and sugar, we obtain all the farinaceous and nutritious elements required, viz., albumen, gluten, starch, sugar, fat, and the phosphates of lime and magnesia. The food is more particularly adapted for children who have been suckled and are being weaned; for those who are being brought up by hand the following preparation is deemed more advisable: an ounce of *very finely* scraped

yellow carrot, and two drachms of biscuit-powder are to be mixed with two cupfuls of cold soft water. This must stand in a covered vessel, in a cool place, for twelve hours, and be frequently stirred during this time. It is then to be drawn off, or strained through a linen cloth. Some sugarcandy and a pinch of salt are to be added to the fluid, which may then be administered by means of the sucking-bottle; care being taken that the food is at the proper temperature.

[The above preparations of the carrot as diet are contra-indicated when there is any tendency to diarrhoea.] *Part xxii., p. 168.*

Forcible Feeding.—Dr. Szigmondy describes a simple and effectual means of administering fluid nourishment to persons who are unconscious, suffer from trismus, or obstinately refuse food. The patient is laid horizontally on a bed, with the head somewhat raised, and the food is poured by teaspoonfuls through the nostril. Reaching the pharynx, the movement of deglutition is provoked; and as soon as this is perceived, another small portion is poured in. In this way, too, physic can be given to children who resist. He relates a case of severe alcoholic coma, with spasmodic closure of the jaws, which was speedily relieved by the introduction of a solution of tartar emetic. This means is far easier to practice, and causes less irritation, than the introduction of the stomach-pump.

Dr. Beer stated that by the magnetico electrical induction apparatus, the mouth can be sufficiently opened to admit of portions of solid food being introduced. *Part xxxii., p. 221.*



FRACTURES.

The Advantages of Delay (Expectation) in the treatment of Commuted Fractures.—By this term we wish to express a prudent and well-considered delay for several days after the receipt of a severe accident, and during which time a skillful management of all the symptoms constitutional as well as local, is perseveringly pursued—so that on the one hand a fair chance is given to nature to repair the damage, and on the other hand, that the health of the patient is not unwisely risked too far before any mutilating operation is resorted to.

The judicious employment of local and general bleeding, of refrigerant drinks, of low diet, etc., in robust and phlethoric constitutions, and of opiates and other anodynes, along with these means, in such as are feeble, lymphatic and nervous, will often serve to prevent, or at least to mitigate, the severe symptoms which follow, as a matter of course, every serious injury or wound. At the same time the free incision (*débridement*) of such parts as may be tense and confined, the extraction of splinters which are always a cause of much pain and irritation, the resection of any protruded bones, the adjustment of opposite surfaces by means of stitches or bandages, the continued effusion or irrigation of cold water on the seat of the injury, the employment of emollient or resolving remedies according to existing indications, the use of the starched bandage (*bandage amidonné*) as soon as the first or inflammatory accidents have passed away, and the administration of internal or external revulsives when any complication supervenes—these means, if judiciously practised, will in very many cases

enable the surgeon to conduct his patient through numerous dangers and difficulties, and restore him to health without having undergone any loss or mutilation. The salutary effects of one or two large blood-lettings in cases of severe injuries of the limbs, are well known to most practical surgeons; many an unpleasant accident might be avoided by the prompt and decided use of the lancet.

In reference to the application of leeches in such cases, it may be useful to state that they should be applied not to the immediate vicinity of the injury, but at some distance from, and above its seat, and if possible near to the point where the smaller veins terminate in the larger trunks.

Openings must be cut in the bandage over the seat of any wound, so that this may be regularly dressed. We regard the employment of the continued irrigation of the injured part and of the subsequent application of the *starched bandage* as two of the most valuable acquisitions which the art of surgery has obtained in modern times, and as destined to introduce in the treatment of comminuted and complicated fractures and such like injuries, a most beneficial revolution. *Part i., p. 20.*

Aphorisms of Practical Surgery.—When the tibia and fibula are fractured at the same time, the seat of the fracture of the two bones is never at the same point.

The fracture of the upper part of the fibula is always a direct fracture, and is never produced by a *contre-coup* as Pouteau has asserted. The patient may be able to walk about immediately after the accident. It differs from fracture of the lower part of the bone, both in its producing cause, in the absence of displacement of the fragments, and lastly, in its mode of treatment, as nothing is required for the cure but rest.

Fracture of the lower end of the radius is often mistaken for luxation of the carpus backward, and the true nature of the accident is not discovered during the formation of the callus. It is then found that the carpus projects backward, and the ends of the radius forward; that the extremity of the ulna projects toward the inner side of the fore-arm; that there is a sinking in of the radius, as if it had been cleft with a hatchet; and that the interosseous space, so necessary to the movements of rotation, is effaced.

Surgeons are very apt to commit mistakes in their diagnosis of the different fractures to which the fore-arm is liable; and yet it is most necessary for the judicious treatment of each, to have formed an accurate opinion of what accident has taken place. The most frequent fracture of the fore-arm is that of the radius alone; next that of the two bones together; and lastly, that of the ulna alone. In the treatment of fractures of the fore-arm, it is always proper to place two graduated compresses, one on the palmar and the other on the dorsal surface of the limb, and also two splints, and a roller to be passed circularly round; this bandage has the advantage of keeping the two bones apart and of maintaining the interosseous space.

A fracture of the patella is never united by a perfectly formed callus within eighty days or so. The provisional callus, which exists at the end of about thirty days in other fractures, is not sufficient here.

What renders the consolidation of fractures of the patella difficult, is that the fibrous tissue, which is necessary to the formation of the definitive callus, exists on the anterior surface only, and not on the posterior

surface of this bone. The neck of the thigh-bone is nearly in the same condition.

Whenever, after forty or fifty days of the treatment of a fracture, the callus becomes painful, we have reason to fear that it either has given way, or is about to give way, and that the limb will become deformed.

Hemorrhage from the ear, accompanied with coma, almost invariably indicates a fracture of the base of the skull.

Various accidents may arise from the falling with force upon the feet; as, for example, fracture of the heads of several of the metatarsal bones, fracture of the os calcis, rupture of the vault of the foot in consequence of the ligaments being lacerated, luxation of the astragalus, and comminuted fracture of the tarsal extremities of the tibia and fibula.

Part iii., p. 114.

Anchylotis—Is liable to result from the long continued use of any apparatus which renders completely immobile the articulations of a fractured limb.

Part iv., p. 110.

India Rubber Bandages.—The object of this memoir, which was read at the Royal Academy of Medicine in November, 1840, is to point out the advantage obtained by the use of strips of India rubber in the place of common ligatures and bandages, made elastic by means of the same material, in place of the common roller. The author has used them for the last two years, and speaks very highly of their power of maintaining parts in apposition during the most varied movements of those parts. He particularly instances hare-lip, and the operations for the restitution of lost parts. The elastic bandages are also said to be very useful in maintaining oblique fractures of the lower extremities in perfect apposition, opposing a force in constant operation to the irregular action of the displacing muscles. In this way also they may assist in the replacement of parts after tenotomy.

Part iv., p. 113.

Excision of the Callus in Badly United Fractures.—A man, 32 years of age, fell from a cart and fractured his tibia and fibula nearly in their middle. Inflammation, followed by purulent infiltration, attacked the limb, and as the patient was very restless, after the cure was effected it was found that the fragments of the bone had united in an irregular angular manner. Professor Portal first tried to break the callus across, in order to reset the limb, but not succeeding in this, he cut down on the irregular angular projection by a vertical incision, and uncovering the bones, passed a chain saw round them and removed about an inch of the bone. The wound united by the first intention; the limb was kept carefully extended, and in forty-eight days the patient was dismissed cured. The limb was shortened a very little.

Part v., p. 123.

Ununited Fracture treated with Iodine.—[In a case of fracture of the tibia and fibula, where ligamentous structure only had united the bones for about two years, Mr. Scott made use of the following treatment with success. The heel had been drawn up by the muscles about an inch, which made the great toe point downward. Permanent extension was first tried, but this failing, the tendo Achillis was divided, and a weight suspended by a bandage passed round the leg, immediately above the seat of fracture.]

Tincture of iodine (iodin. 3j.; sp. rect. ʒj.) was locally applied daily for

the course of a month, at the end of which time an extensive callus had formed, of considerable firmness. The frequency of its application was now diminished to two or three times during the week, but persisted in for three months longer, when he was taken down from the apparatus and placed in the horizontal posture. The foot had assumed its natural position, the only deformity being a slight bow inward at the place of union.

Part viii., p. 163.

Best Position in Fractures of the Forearm.—Mr. T. O'Connor remarks on this subject as follows:

Of seven cases of fracture of radius treated by me within the last year, two were treated on the semi-supine, and five on the supine plan; in every instance the fracture was immediately above the styloid process, commonly called Colles' fracture. In the two treated on the semi-supine plan, rotary motion was in a slight degree impaired, and that notwithstanding the full employment of the means usually recommended to preserve the interosseous space. The instruments which I used to press the soft parts into the space, were two circular pieces of wood, each about an inch in circumference, enveloped in common wadding, and extending anteriorly and posteriorly from elbow to wrist, kept in situ by a moderately tight bandage—the fracture, of course, previously reduced—the same instruments were employed in the five cases treated on the supine plan, and with a result so highly satisfactory, that I am fully resolved to treat fracture of the forearm on no other plan whatever. *Part ix., p. 173.*

Diagnosis of Fractures of the Lower End of the Radius.—[Mr. Lonsdale thinks there are one or two points connected with fractures of the lower end of the radius, which deserve more attention than has hitherto been paid to them, as diagnostic symptoms of this particular kind of injury. He refers to the prominent ulna, and peculiar displacement of the hand. He says:]

When the radius is fractured within its lower inch, or inch and a half, by fall on the hand, it will be found that, in the majority of cases, the following deformity exists: the whole hand appears to be displaced laterally outward, or in a state of abduction; that is to say, the ulnar edge of it, instead of being in a line with the ulna itself, occupies a position more external, or toward the radius, which causes the end of the ulna to project, and to be apparently dislocated. There is also generally found to be a depression on the opposite side, in the radius itself, in the situation of the fracture; and there is not unfrequently a prominence posteriorly above the carpus, when the displacement has taken place in this direction as well. The crepitus is not often present in these cases, for the fractured surfaces are so tightly locked together, that motion between them is seldom obtained.

I believe that in every case of injury about the wrist, from a fall upon the hand (whether in old or young people, though more frequently in the former), where there are found to be *this peculiar prominence of the ulna, and lateral displacement of the hand*, it may safely be said, that the lower end of the radius has been fractured, without the necessity of taking any other symptoms to help the diagnosis, even if no deformity is to be felt about the radius itself, or other part of the joint. *Part ix., p. 182.*

Acupuncture for the Consolidation of Fracture.—A young man, aged twenty-six, of a strong constitution, fractured the two bones of the fore-

arm; the fracture was simple. The surgeon who attended him, perceiving that, at the end of five weeks after the accident, reunion had not taken place, applied afresh the apparatus, and ordered absolute repose for the limb for four weeks longer. This time having elapsed, M. Wiesel observed that the fragments of bone still preserved their mobility, and he then determined to have recourse to acupuncture, which he performed in the following manner: he introduced between the two movable fragments of the ulna, two needles, sufficiently long to traverse the false articulation from side to side, and kept the needles in that position for the six following days, after which he withdrew them, because they had excited, by their presence, a considerable swelling of the part, and severe pain. M. Wiesel, fifteen days afterward, traversed in the same manner the false articulation of the radius, with two other needles, which, at the end of a few days, caused sharp pain, and a slight suppuration. He then applied a simple bandage to the limb, and in the space of six weeks a complete consolidation took place. This case is no less interesting for its success than for the simplicity of the means adopted. It proves that, in cases of false articulation, the surgeon, before employing the seton or removing the ends of the bone, has a method to try, very simple and innocent, and which, in some cases at least, has been attended with most advantageous results.

Part ix., p. 186.

Treatment of Fractures.—Immediately after the fracture of any bone, when there is a tendency to great tumefaction, it is wrong to apply either splints or bandage, for any restriction of swelling is liable to produce gangrene; under these circumstances, the limb should be placed on a pillow in a semi-flexed position, so that the muscles may be perfectly relaxed, and the bones placed as nearly as possible in their natural position; which circumstances may be ascertained, whatever may be the swelling, by the immediate comparative ease of the patient. An evaporating lotion is then to be used; or should there be any tendency to involuntary contraction of the muscles, strips of soap plaster may be gently applied around the limb, which, by causing a secretion beneath it, diminishes the irritability of the muscles, as well as the urgency of the inflammation. If it can be avoided, purgative medicines should not be given, as they would produce a necessity for frequent change of position. As soon as the tumefaction and inflammation have subsided, which, under the treatment recommended, generally happens in three or four days, well-padded splints should be applied, and retained in their situations by broad pieces of tape resting firmly on the splints, but which should not be anywhere in contact with the limb.

It has been stated, that a bandage should never be applied immediately after the occurrence of fracture; however, it may be considered as an exception to this rule, that when a portion of fractured bone has wounded and irritated a muscle, a bandage is the best means of removing its spasmodic action. When fracture of a bone happens in the neighborhood of, or passes into a joint, local bleeding, by means of leeches, is always necessary, and may require to be frequently repeated: even the necessity for general bleeding may sometimes be indicated, when there is much constitutional irritation; in which case, calomel and opium will also be found of the greatest service. In fractures into joints, when inflammation becomes so violent that the surgeon sees that ankylosis must necessarily occur, the

joint should be placed in such a position as to render the limb as useful as possible. Under these circumstances, for instances, if the elbow joint be the one affected, the forearm should be semi-flexed; by which position the patient will afterward be able to feed himself. In the knee-joint, the leg should be very slightly flexed upon the thigh; by which method he is better able to direct the foot, and the limb is rendered more manageable in the sitting posture. In the ankle-joint, we should endeavor to procure a union with the foot perfectly flat; whereby the patient will afterward enjoy considerable use of his limb. *Part xi., p. 107.*

Fractures of the Ribs—Remarks on.—The manner in which the accident occurs is of importance in cases of fractured ribs; for if the chest has been jammed, the salient angle will be outward, and the accident less dangerous, than where the fracture has been produced by a direct blow or fall upon the ribs; for then the salient angle will be inward, and the prognosis will be more unfavorable, from the chance of the lungs being wounded. For this reason, and from the urgent dyspnoea, the prognosis will be at first unfavorable, but the symptoms may be relieved by bleeding, bandaging, &c. The bleeding diminishes the action of the heart, and the tendency to inflammation; and after its employment the potassio-tartrate of antimony is a very excellent medicine for maintaining the influence produced by the loss of blood. Calomel also, just to affect the mouth, acts as a preventive of inflammation of the serous membranes. The use of the bandage is evidently to diminish the action of the lungs, and keep them as quiet as possible; it does not act as splints to the long bones, which are for the purpose of keeping the fractured extremities in apposition; or, if there be any analogy, it is where a splint is put behind a joint to prevent motion, for the bandage around the chest performs the same office. In diseases of the respiratory organs, the great difficulty in the treatment is to keep the parts quiet; and hence the great danger of diseases of the larynx, for which, in my opinion, openings in the trachea are not sufficiently often made for the purpose of maintaining a perfect state of rest of the diseased cartilages of the larynx. During sleep these organs are in a comparative state of rest, and, therefore, opiates, or rather sedatives, are indicated; the objection to the first being, that they check the natural secretions. Hence, bandaging, antimony, opium, calomel, aperients, and complete rest, are the means to be employed in cases of fractured ribs under common circumstances. *Part xii., p. 149.*

Fracture of the Spine—Diagnosis of.—[Mr. Cooper, in a lecture on fracture of the spine, makes the following remarks on the diagnosis of the exact vertebra broken:]

With regard to finding out the exact vertebra broken, you are not always able to tell by examining the spine. The method which I always adopt is this: place each hand widely spread out over each side of the chest; you will feel the ribs above the paralyzed part move naturally by the intercostal muscles, those below only move according as they are acted on by the descent of the abdominal viscera. I confess, I think it is dangerous practice to make extension to attempt to replace the broken vertebra, for you are liable to tear through the spinal cord, and add to the mischief; besides it does not necessarily occur in fracture that the paralysis depends on pressure from bone; it may be from blood, or, perhaps, serum.

diet, by pharmaceutical means, and what I wish to do, by mechanical means—by surgery. Here, we restore the powers of life by wine and nourishment, and relieve the patient by mechanical means, viz.: drawing off the urine and order. The catheter, in these cases, should always be used with the utmost delicacy, for as the patient cannot feel so as to know when he is going wrong, you may do much mischief. The death, in these cases, is owing to the decomposition of the vital functions are not much interfered with); the inflammation of the bladder, which secretes an unhealthy mucus, and that also decomposes, increases. I do not, however, think we are right in saying that the bladder is not much interfered with, for look what a large surface of skin—is deprived of its function; and the effect this deprivation is well known. In the case of burns, if more of the body is deprived of cuticle, the result is fatal; and what effect the stoppage of secretion from so large a surface has on that of the lungs and kidneys, and thus hasten the fatal result.

Dieffenbach's Operation for Pseudarthrosis from Ununion.
[The first case related, in which the operation was performed, was that of a woman who had broken her thigh fifteen months before, and remained ununited, and such an incumbrance that she desired to have it removed. Dr. Bushman proceeds:]

There was some soft callus between the fractured ends, but they were not moved as in a capsule, but no bony deposit. Dieffenbach removed this grisly matter by rubbing the ends of the bone together, and thus setting up inflammatory action; and, this operation being attempted to produce bony union; not, indeed, by the usual uncertain routine of very close and accurate contact of the bones by various mechanical means.

ends of the fractured bone, that healthy callus had been thrown out; and so the ivory pegs were removed, and the wounds allowed to heal. In three months from the date of operation the patient walked without crutches, and was dismissed cured. *Part xv., p. 151.*

Treatment of Ununited Fracture by Subcutaneous Puncture.—Employ subcutaneous incisions of the parts, by passing a strong needle obliquely down, and moving its edge freely about in all directions, so as to cut up the ligamentous bond of union, and the dense investment of the ends of the bones; withdraw the needle and cover the puncture with isinglass plaster. The parts will probably be reduced to a state very similar to what attends on ordinary fracture at the first. A pouch of blood will form; the blood will be absorbed; fibrin will take its place; the plasma will become organized, and probably form an excellent imitation of the ordinary provisional callus; while at the same time secretion and organization may advance from the ends of the bone; and consolidation, as by definitive callus, be completed.

The connecting materials of the "false joint" are disrupted and excited, not destroyed. They are valuable toward the formation of bone, when brought into and maintained in a state of moderate vascular excitement. "A state of active hyperæmia generally precedes the osseous transformation of the fibrous, cartilaginous, and fibro-cartilaginous tissues. M. Rayer observed, that when he excited an artificial irritation in the fibro-cartilage of a rabbit's ear, the part was at first softened; a yellow matter was next deposited in its texture; and, finally, a calcareous deposit was formed, and a true ossification produced. M. Cruveilhier likewise observed different portions of periosteum, ligaments, and cartilages, pass into the osseous or ossiform state, under the influence of different stimulating applications."

Of course, in no case is local treatment exclusively to occupy our attention. Constitutional management must never be overlooked; and often it proves of the highest importance. Further, the foregoing observations are not intended to apply to those cases where non-union is obviously dependent on the impaction of a slip of muscle between the fractured ends, or to the presence of a piece of bone, or to the lodgment of a foreign body from without. In such cases, immunity from motion, with attention to the system, after removal of the cause, is usually sufficient.

Part xviii., p. 144.

Treatment of Fracture of the Thigh in Infants.—[It is well known how difficult it is to get a fracture of the thigh in infants united without shortening and curving forward of the femur. Mr. Lonsdale, however, suggests a plan by which this difficulty may be obviated. He says:]

I employ two strips of sheet-iron, an inch wide, and thin enough to allow of being easily bent at any angle required, though sufficiently thick to bear the weight of the limb without yielding. They are applied as follows: The child is placed on its back, and an assistant holds the limb in a position so as to flex the hip and knee joints, the angle of flexion being similar to that employed when the inclined plane is used for adults. The two thin iron splints are then bent at angles corresponding to the hip, knee, and ankle joints, to adapt themselves to the limb, in the position in which it is being held by the assistant. An important point to attend to is the proper length of the splint. The upper one should be long.

enough to pass up in front of the hip joint, to lie flat on the lower part of the abdomen, and to extend down over the instep to the toes. The back one should extend up behind the buttock, being curved to fit its shape, as high as the posterior margin of the crest of the ilium, and long enough to extend down behind the heel to the sole of the foot. If the two splints are bent at proper angles, to correspond with the shape and position of the hip, knee, and ankle joints, they will, when firmly bound to the limb, keep it in the position required, which is one that most favors the correct apposition of the ends of the bone, by relaxing all the muscles. The limb must of course be evenly rolled before applying the splints, and the splints themselves be padded. The upper ends of the splints are to be firmly fixed to the pelvis, by passing the bandage many times around them, and occasionally reversing the direction of the bandage round the ends of the splints themselves, to prevent them being displaced laterally.

Part xviii., p. 147.

Collection in Compound Fracture.—The value of solution of gum-eotton was tested in a case in St. Vincent's Hospital—a compound dislocation of the ankle, with the usual fracture of the fibula. The tibia protruded through a long transverse wound at the inner ankle. The bone was easily reduced; but retraction of the divided integument kept the edges of the wound about an inch apart. After careful and gentle manipulation, aided by suitable position, Dr. O'Ferrall succeeded in bringing the posterior commissure of the wound together, and sealed it with the solution. Another point was then made to touch, and was sealed like the former. Eventually the entire wound was thus sealed up, although synovia mixed with blood had been freely oozing before. It is now the sixth day—there is no inflammatory symptom, and the patient rests very well.

Part xix., p. 135.

Symptoms of Fracture of the Base of the Skull.—[In reply to the question "What are the pathognomonic signs of fractures of the base of the skull?" Mr. Adams observes:]

Hemorrhage from the ear is generally ranked as a symptom of fractured base: this may arise from a variety of sources—thus, it may depend on rupture of the membrana tympani; it may depend on rupture of the lateral sinus, or of the carotid artery, as when an extensive fracture traverses the canal lodging this vessel; in either of the two latter instances the hemorrhage would be so profuse as to leave no doubt as to the nature of the injury. But hemorrhage from the ear is, in my opinion, not pathognomonic of this accident: it is so commonly found in slight cases of injury to the head, and in cases which occur without any untoward symptoms, and many such cases are brought to this hospital, that I feel justified in discrediting it as a sign wholly to be relied on. Now, if in a case of injured head, hemorrhage from the ear has taken place, and the injury has been accompanied or succeeded by paralysis of the portio dura, then I should be disposed to regard these signs collectively as indicative of a fractured base; but separately and singly, although it has an important indication, I do not rely upon it as conclusive of the existence of such an accident.

Although hemorrhage from the ear and paralysis of nerves passing out of the base of the skull are presumptive signs of fractured base, yet they are not positive signs of this accident; and, indeed, I know only of one

symptom which is strictly pathognomonic of the injury, and that is a free discharge of serum from the ear after a severe injury of the skull. This symptom, however, comes on, not immediately, but on the second or third day after the accident. I remember a case some years ago, of a man in whom a serous fluid escaped from the ear in such quantities as to soak through the pillow, and to require repeated changes of linen. A similar case is recorded in the tenth volume of the "Medical Gazette," where the patient lost between four and five ounces of a similar fluid in one night; both these cases did well. In the *Mémoires de la Société de Chirurgie de Paris*, there is an article on this subject by M. Robert, who, from numerous dissections, has distinctly traced this phenomenon to a fracture extending across the petrous portion of the temporal bone, and a direct opening from this into the arachnoid cavity.

Part xx., p. 102.

Method of Treating Fractured Ribs.—[Mr. Hancock does not employ either the bandage or venesection, believing these means to be unnecessary, or even injurious. We are told that]

He relies chiefly on opium. By the use of this drug he subdues irritation, moderates inflammation, procures to the patient a very desirable amount of rest, and wards off all the thoracic complications which sometimes render these cases extremely serious.

Part xxi., p. 191.

Practice of Tenotomy in some cases of Fracture.—W. S., aged forty, was admitted into the Middlesex Hospital, having fallen downstairs in a state of intoxication. Both bones of the leg were broken, and the fracture of the tibia extended through both malleoli, the foot being twisted outward. Violent spasms of the muscles frustrated all attempts to keep the fractured extremities of the bones in apposition; the slightest movement brought on this spasmodic contraction, which extended to all the muscles of the limb, so as to cause great distortion of the foot, and render the skin over the base of the tibia extremely tense. All the symptoms continuing unabated on the following day, and the suffering of the patient being considerable, Mr. Shaw determined on dividing, in the usual way, the tendo Achillis, which was very tense. After this, all the difficulties entirely ceased, and no further trouble was experienced in the treatment of the case.

Part xix., p. 191.

Fracture of the Neck of the Thigh Bone.—[Mr. Lizars, believing "the diagnosis of the fracture of the neck of the thigh bone is little understood, even by surgeons holding important situations," mentions the following reasons for his belief.

In the majority of cases the diagnosis is simple: The shortening of the limb, the eversion of the toes, the flattening of the nates and the pain at the joint, especially when the thigh bone is rotated, at once indicate the nature of the accident, which generally occurs after fifty years of age. But in a very considerable number of individuals, there is no shortening of the limb, for one or more days, nay weeks, or even months, after the occurrence of the accident; and in such cases, when the fracture has been overlooked or neglected, the shortening becomes so great, that inversion, instead of eversion of the foot and toes, takes place, and the ignorant and inexperienced surgeon pronounces the case to be dislocation of the head of the thigh bone on the dorsum of the os ilium, and the unfortunate sufferer is tortured with lacs and pulleys.

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 often be half an inch and more in thickness,
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 is very distressing, particularly in the thigh, in
 continues for months, and even years.

and often lodge in the less dense parts of bones, such as
 and condyles of the femur, without fracturing the
 sometimes even pass through the femur above and between
 merely splitting, but without separating the bone in parts or
 sometimes lodge in the shaft of the femur, without breaking
 do so in the tibia, the humerus, the bones of the cranium,
 and others of less size. Balls thus lodged will sometimes remain
 during a long life, without causing much inconvenience. In
 generally the reverse, and they are often the cause of so much
 and distress, that the sufferers are willing to have them, and even
 removed at last, at any risk.

However, then, a ball can be felt sticking in a bone, although it cannot
 be brought into sight, it should, if possible, be dislodged and removed by
 the trophine, by small chisels, by small, strong-pointed curved elevators,
 or by any of the screws invented for the purpose, which have sometimes
 been found efficient.

When a ball merely grazes a bone without breaking it, and passes
 through the limb, and no splinters can be felt by the finger, dilatation is
 unnecessary in the first instance; although some small splinters may be
 cut off subsequently, or a layer of bone may exfoliate, requiring assistance
 for their removal.

The bone may be fractured in a case of this kind transversely, and will
 require only the simplest treatment in an almost similar manner.

If the ball should enter and be flattened against the bone without break-
 ing it, and lodge against it or in the soft parts, it should be sought for
 and removed. When the ball is flattened and the bone broken, it may lie
 between the broken extremities, and even lodge in one of them, render-
 ing the case more complicated, and the necessity for close investigation
 more urgent.

When a ball strikes the shaft of a bone, such as the femur, directly and
 with force, it shatters it often in large, long, and pointed pieces, retaining
 their attachment to the muscles inserted into them. A fracture of this
 nature in the middle of the thigh will often extend downward into the
 condyles, and as high as, although rarely into, the trochanters. These are
 cases for immediate amputation.

Gun-shot fractures of the head and neck of the femur have been hitherto
 fatal injuries, unless the whole extremity has been removed. It is hoped
 may be prevented without this most formidable operation, by the
 of the head and neck of the bone. If the upper third of the femur,

An arm or a leg, as a general rule, is not to be amputated in the first instance, for a compound or gun-shot fracture. An effort should always be made to save it; and, under reasonable circumstances with regard to the extent of injury, the comfort, climate and ordinary good health of the sufferer, the object will usually be obtained, under good surgical treatment.

It is not so with the thigh. After the battle of Toulouse, forty-three of the best of the fractures of the thigh were attempted to be saved under my direction, and even selection. Of this number, thirteen died; twelve were amputated at the secondary period, of whom seven died; and eighteen retained their limbs. Of these eighteen, the state three months after the battle was: five only can be considered well, or as using their limbs: two more think their limbs more valuable, although not very serviceable, than a wooden leg; and the remaining eleven wish they had suffered amputation at first. Of the officers with fracture of the femur, one, having been taken prisoner during the action, died under the care of the French surgeons, by whom he was skillfully treated; the other has preserved a limb, which he rather wishes had been exchanged for a wooden leg.

Nearly all the wounded, after this battle, had every possible assistance and comfort, from the second day after the action. The medicines and materials for their treatment were in profusion. The sick and wounded (1259 in number, including 117 officers) were in charge of two deputy inspectors-general, ten staff-surgeons, six apothecaries and fifty-one assistant surgeons: and the whole worked from morning until evening with the greatest assiduity. The surgery of the British army was at the highest point of perfection it attained during the war; and this enumeration is given to show the number of medical men required under the most favorable circumstances for 1500 wounded men, if they are to have all the aid surgery can give them.

Every broken thigh or leg was in the straight position, and the success was greater than on any previous occasion. Nevertheless, with all these advantages, there can be little doubt that if amputation had been performed, in the first instance, on the thirty-six out of forty-three who died or only partially recovered, some twenty would have survived, able, for the most part, to support themselves with a moderate pension, instead of there being perhaps five, or at most ten, nearly unable to do anything for themselves. The Baron Larrey, with the *élite* of the military surgeons of France, as well as those of Germany, has maintained this opinion; and in the present state of our knowledge, it is perhaps the safest practice, particularly under doubtful circumstances, in which it cannot be ascertained whether rest, the best surgical care and comfort may not be wanting, without all which a favorable result cannot be expected.

The peculiar difficulty in treating a gun-shot fracture takes place when the bone is splintered for some distance, as well as broken. In these cases, inflammation occurs internally in the membranous covering of the cancellated structure of the bone, which ends in the death of the parts affected; whilst the periosteum takes on that peculiar action externally, which ends in the deposition of ossific matter around the splinters which have lost their life, and are enveloped by it. The bony matter, at first small in quantity, is gradually augmented, and deposited for some distance in the surrounding parts, so that it has been known to include the neighboring

vessels and nerves in less than twenty days; and at the end of a few weeks the quantity of ossific deposit is often very remarkable. Each splinter of bone becomes the sequestrum of a necrosis, in a similar manner as it is known to occur in the bones of young persons spontaneously affected by this disease, with this essential difference, that in the idiopathic disease there is only *one*, as if worm-eaten, sequestrum, perhaps the length of the shaft of the bone, and easily removable by one operation, while there may be in the traumatic disease several dead centres of dead deposit, each of which requires to be removed by an operation to effect a cure. This new bony deposit will often be half an inch and more in thickness, and at a late period is as hard as the old bone. The repetition of operations required in such cases is very distressing, particularly in the thigh, in which the disease often continues for months, and even years.

A musket-ball will often lodge in the less dense parts of bones, such as the great trochanter and condyles of the femur, without fracturing the bone; it will sometimes even pass through the femur above and between the condyles, merely splitting, but without separating the bone in parts or pieces. Balls sometimes lodge in the shaft of the femur, without breaking it, and frequently do so in the tibia, the humerus, the bones of the cranium, and even in others of less size. Balls thus lodged will sometimes remain for years, nay, during a long life, without causing much inconvenience. It is, however, generally the reverse, and they are often the cause of so much irritation and distress, that the sufferers are willing to have them, and even their limbs, removed at last, at any risk.

Whenever, then, a ball can be felt sticking in a bone, although it cannot be brought into sight, it should, if possible, be dislodged and removed by the trephine, by small chisels, by small, strong-pointed curved elevators, or by any of the screws invented for the purpose, which have sometimes been found efficient.

When a ball merely grazes a bone without breaking it, and passes through the limb, and no splinters can be felt by the finger, dilatation is unnecessary in the first instance; although some small splinters may be cast off subsequently, or a layer of bone may exfoliate, requiring assistance for their removal.

The bone may be fractured in a case of this kind transversely, and will require only the simplest treatment in an almost similar manner.

If the ball should enter and be flattened against the bone without breaking it, and lodge against it or in the soft parts, it should be sought for and removed. When the ball is flattened and the bone broken, it may lie between the broken extremities, and even lodge in one of them, rendering the case more complicated, and the necessity for close investigation more urgent.

When a ball strikes the shaft of a bone, such as the femur, directly and with force, it shatters it often in large, long, and pointed pieces, retaining their attachment to the muscles inserted into them. A fracture of this nature in the middle of the thigh will often extend downward into the condyles, and as high as, although rarely into, the trochanters. These are cases for immediate amputation.

Gun-shot fractures of the head and neck of the femur have been hitherto fatal injuries, unless the whole extremity has been removed. It is hoped death may be prevented without this most formidable operation, by the removal of the head and neck of the bone. If the upper third of the femur,

below the trochanter, is badly fractured, and an attempt is made to save the limb, death generally occurs after several weeks of intense suffering. Few escape with a useful limb, which had been badly fractured in the middle part, their strength and health being destroyed by the pain, suppuration and constitutional irritation which ensue.

The least dangerous and the most likely to be saved, are fractures of the lower third, or at most the lower half of the thigh, and when they do not communicate with the knee-joint, an attempt ought always to be made to save them.

The preservation of a fractured femur from a musket-ball, when splintered to any extent, ought only to be attempted if the principal splinters can be removed. When the splinters of the femur are long and large, it has been supposed that if they retain their attachments to the soft parts, they may be placed in apposition and preserved. It ought, however, only to be attempted under the most favorable circumstances, and will not even then succeed. In the humerus it is different. An examination by the finger, in the first instance, is necessary to ascertain the extent of the injury to the bone, and to enable the surgeon to remove the broken portions, as well as the ball or any extraneous substances which may be in the wound. The incisions necessarily required for this purpose in the thigh are sometimes neglected, or the surgeon refrains from making them from the great thickness of the muscular parts, and from the wound having taken place on the inside, near the great vessels, so as to render incisions of sufficient size or extent in some degree dangerous. The thickness of the muscular parts is not a sufficient reason for avoiding an incision, neither is the vicinity of the great vessels and nerves, although they may not be divided; and if the situation of the bone on the outside of the thigh be attended to, the broken portions may sometimes be got at, at that part, if not on the inside. If this cannot be done, amputation had better be had recourse to. The object of the examination of such a wound being to ascertain the state of the fracture, and to remove the splinters and any extraneous substances, the extent and number of the incisions must depend on them; the true principle of what has been called dilatation in wounds. If the ball should have merely struck and grazed the bone, and passed out, causing a transverse fracture only, there is no necessity for making incisions at the moment, although one or more may be subsequently required to aid in the discharge of an exfoliated piece of bone, or of a splinter which may have been overlooked. If the ball lodge deeply in the soft parts, after breaking the bone, it should be removed, if practicable, by a second or counter opening, and a free vent should always be made for the discharge. It may be, however, laid down as a general rule, that whatever is likely to be required during the first few days, had better be done on the first than on the second or third; for after inflammation has commenced, any handling or examination of the limb, however gently made, gives great pain.

After the first incisions have been made, and the larger splinters, which can be felt, have been removed, a secondary danger occurs from those which are smaller, and may have been overlooked, or have not been discovered. This arises from the enveloping of these splinters in the new osseous matter described as being formed by the inflamed periosteum. This evil must be prevented by a careful examination of the wound when suppuration has been fully established.

position forward, or on an inclined plane, is desultory matter, which must necessarily be secreted in great quantity backward in spite of every care to prevent it. Instead is used, a slightly inclined plane will sometimes, at a later period, when the body may also be raised in position, the principal object being to take off the muscles inserted into the smaller trochanter, which, behind, raise and evert the upper end of the broken portion outward, should be met by a similar direction of the bone, and by the application, from time to time, of compresses, and bandage, on the elevated bone, if they perfect ease.

Splints are of various kinds, and made of different materials. The discovery of gutta serena has enabled some to be made of gutta serena, which, when molded into sheets, of from one to two inches thickness, can be rendered soft and pliable by the application of heat, and regaining its firmness as it dries. Splints can thus be made of any length, and of any form, with apertures, if necessary, for the discharge from the wounds.

One wooden splint of more than the length of the bone, similar to that called Desault's, is absolutely necessary in all cases, can be borne, as a means of extension, or rather of support. A shorter one on the inside, and one behind, will soon complete the set. A short one may be wanting in front.

The bones of the leg being more exposed, admit of being taken with them, and of larger portions, or even of the whole, being removed, than ought to be attempted in the arm. Therefore be rarely amputated for a fracture from splinters should be removed to almost any extent angular portions sawn off, even if both ends should be separated. The bone of the leg remains unaltered, the ends being

second wound in the forearm only complicates the case, and the loss of a finger or two does not augment the danger. In fact, amputation should rarely take place in the first instance; and only in the second when mortification has commenced, or the strength and health of the patient will no longer bear the drain upon them.

In making incisions for the removal of splinters of bone, both at an early and at a late period, and particularly in the latter, when the soft parts are all impacted together, and *nothing is gained beyond what is cut*, the course of the trunks of nerves, as well as of the great arteries, should be carefully attended to, and these parts avoided; for a successful cure of the fracture will be much deteriorated in value, if accompanied by a loss of motion and sensation in the hand or fingers.

Splints for the arm should be made of solid materials, although light. The pads or lining for the splints should be made of cleaned or carded wool, rather than of tow or old linen, protected by some one or other of the modern modifications of caoutchouc.

Part xxvi., p. 131.

Division of the Tendo Achillis in Certain Cases of Fracture of the Leg.—In a case of this accident, where constant displacement of the bones was produced by the extreme spasmodic action of the muscles of the calf, after all means to remedy this state of things had been tried in vain, the tendo Achillis was divided with the most complete success.

Part xxvii., p. 110.

Galvanism in Ununited Fracture.—Introduce a needle from each side of the limb into the interspace between the bones, and pass a continuous current of galvanic electricity through. In an obstinate case mentioned by Mr. Holl, of the York County Hospital, the application was continued daily for a fortnight, and a cure was the result.

The fracture was of the leg, very movable, and had existed more than a year.

Part xxix., p. 156.

Treatment of Fractures of the Base of the Cranium.—If the patient be collapsed from the immediate effects of the accident, cover him up with blankets next his skin, add artificial heat by placing bottles of hot water in his bed, but not in contact with the skin; give brandy or ammonia to aid reaction, and as soon as vascular and nervous reaction are sufficiently re-established after the accident, as evidenced by the gradual recovery of the natural temperature of the body, and by the improved state of the pulse, purgatives should be employed to clear the bowels efficiently. If the patient has been accustomed to take large quantities of stimulants, the same kind of drinks must be had recourse to, especially if the pulse flag, or the temperature of the surface be disposed to decline. After the purgo has acted satisfactorily, give the patient mercury and chalk and Dover's powder: if an adult, five grains of each twice or three times daily during a few days, or until he becomes slightly mercurialized. The patient to be kept as quiet as possible reclining in bed, and not allowed to sit up or attempt to walk. If the pulse become hard, and incompressible, cup the back of the neck or apply leeches to the head, or bleed from the arm, but do it with care and discretion. Should the patient be very irritable, the head a little hot, the pulse a little accelerated, thirst slightly increased, the skin hotter than natural, and dry, and the tongue furred and white, apply a blister to the nape of the neck, and give diaphoretics in the form of the solution of the acetate of ammonia. Farinaceous food and ice

when too movable, or too far asunder, or when they will not unite, use the *wire-ligature*. Bore canals in of the bone, about three-eighths of an inch long, the (No. 18) through these canals, and twist it tightly, bones come firmly in contact. This practice has been only in old ununited fractures, but it is a question whether it also be used in more recent cases, *when the bones are* military surgery it may be useful. Any kind of wire

Compound Fractures.—Where the bone protrudes from a punctured wound, the case frequently takes a more unfavorable course than where the skin has been extensively lacerated. Inflammation, and abscesses, are far more apt to follow.

It is the result of Mr. Cusack's vast experience, that a bone which protrudes from a small punctured wound, is more prone to run an unfavorable course. You see, then, that, in such a case, as you would be apt to do, the evil consequence from a compound fracture by the degree of injury done. On the contrary, within certain limits, a small punctured wound, where the bone protrudes, usually leads to worse results than where the skin is extensively lacerated.

The first step you have to take, when called in a case of a compound fracture, is, of course to endeavor to reduce the bone. If the bone fragment projects, the skin affords the first impediment to reduction. The more you pull the more you draw in the skin. There is but one means of overcoming this obstacle. Make an incision with a bistoury beneath the lower lip of the wound in the skin. This will at once liberate the bone, and allow it to slip back into its position. If reduction cannot be otherwise procured, a portion of the skin must be clipped off with a forceps. The bones being properly reduced, they must be placed on its side or back, according to the situation of the fracture; and now comes the question as to the

to be pursued in compound fracture, all you can do is to watch the symptoms as they arise, marking their character, and meeting them accordingly. During the early period of the case, you will have to deal with symptomatic inflammatory fever, which sometimes runs very high; then the type alters, and in cases attended with much suppuration, hectic fever becomes gradually established. One of the most troublesome symptoms, at this stage, is often diarrhoea, which sometimes proves quite uncontrollable by the most powerful astringents. The chief point, however, to attend to, in the course of compound fracture, is the formation of abscesses. The patient is going on satisfactorily; his pulse is tranquil, his skin cool; he sleeps well, neither does he experience any pain—when, suddenly, he is seized with a rigor, high fever is lit up, and he complains of severe pain. This change implies the formation of matter in some part of the limb; examine it carefully, and if you detect an abscess, open it at once. Sometimes the suppuration presents itself in the form of a succession of small abscesses; but, occasionally, a large collection of matter forms beneath the fascia, and unless this be let out by an early and free opening, it may burrow until it destroys the cellular tissue between the muscles to a serious extent.

Now, with respect to the performance of amputation in compound fracture, it may be had recourse to at three different periods; within twenty-four hours from the receipt of the injury—primary amputation; and after this period, principally for gangrene; and at a still more remote period, for hectic fever—secondary amputation.

As regards primary amputation, we should be very slow in having recourse to it. It is wonderful what powers of repair nature occasionally exhibits, particularly in young persons; so that unless the amount of injury be obviously irreparable, it is our duty to endeavor to preserve the limb. In those cases, however, in which primary amputation is unavoidable, we must take care to hit on one particular moment for its performance—when reaction is fairly established, but before it passes into fever. In cases of severe compound fractures of the limbs, particularly those inflicted by sudden and powerful violence, the individual remains in a state of collapse for several hours afterward, and if amputation be performed under such circumstances, a fatal result may accrue. You must wait until reaction sets in; still, if you wait until it has glided into fever, you operate under a great disadvantage; your case will be very apt to have an unfavorable issue.

One of the greatest questions, however, in practical surgery, is the period at which amputation should be performed in compound fracture, when gangrene supervenes. Military surgeons, as Larrey and Guthrie, say you may amputate when the gangrene is spreading. Most surgeons say, delay till the gangrene has ceased to spread, and the line of demarcation has been fairly established. Perhaps the best practice is a middle course, viz., if within a certain period no disposition to an arrest of the gangrene appear, we ought to operate while the patient is strong enough to bear it. Should, however, the gangrene spread quickly, accompanied by great prostration of strength, delirium and rapid pulse, the operation is inadmissible.

Part xxx., p. 126.

Treatment of Fractured Patella.—[In cases of transverse fracture of the patella, it is sometimes very difficult to secure coaptation of the fragments. Mr. Clark employed lately a novel expedient.]

It consisted of a cap of gutta percha molded to the front aspect and sides of the joint, and with a hole cut in its centre large enough to receive the patella. The two halves of the broken bone having been by manipulation brought into apposition, the splint, lightly padded with lint, was placed over them and confined by means of bandage. Its influence was thus, by pressure from above and below, to keep the fragments in exact position. The case in which the plan was adopted did remarkably well, and after the first reduction no trouble with subsequent displacements occurred. It is of course advisable to adopt the ordinary measure of flexing the thigh as much as possible on the pelvis during the treatment, and with this view, in the present instance, the leg was swung by a broad suspensory bandage passed beneath the calf and fixed to the curtain-pole of the bedstead.

Part xxx., p. 129.

Diagnosis of Fracture.—[Most surgeons dislike fractures of the long bones in children, especially when near the joints. The ends of these bones are more vascular and more disposed to ulceration than the middle parts. Mr. Stanley makes the following practical remarks on this subject:]

Pott's fracture is a rather insignificant accident, fracture of the lower third of the fibula, with dislocation of the tibia and eversion of the foot; it is rather a dislocation of a bad and troublesome kind, first explained very admirably by Mr. Pott, than an injury of such startling and very momentous importance as generally believed. A man jumps from a height, the foot twists outwardly, the foot is drawn out by the peronei, and you have an injury easily recognized; but take care, when you are called to what may or may not be fracture of the upper end of the same bone and tibia, near the knee, with hemorrhage into the cancellous structure of the bone, or fracture without crepitus of the lower end of the femur, or what is nearly the same, swelling of the elbow, and a fracture not to be made out in the humerus—in all these cases, I would advise you to act with great caution, and as if there were fracture really present. You will have, in fact, hemorrhage of the bone, and effusion into the joint, which, I would repeat again, is one of the most untoward complications of these injuries, leading, possibly, very often to false joints or ununited fractures, and reflecting no very conspicuous credit on whoever has the fortune to meet with such cases.

Part xxxi., p. 133.

Starched Apparatus in Fractures.—Mr. Royaton uses it as follows:

All kinds of fractures of the leg, excepting compound, may be treated with the starched apparatus. Apply a dry bandage next the skin, then two pasteboard (side) splints made perfectly soft by soaking in hot water, and molded carefully to the shape of the limb, and lastly a bandage which has been tightly rolled in a thick solution of starch. This becomes quite hard and dry in about twelve hours, and the following day the patient may walk about on crutches, with his leg suspended in a sling from his neck.

The only cases in which we have any fear of employing it are young children of a strumous habit of body, whose skin is tender and irritable. In such cases we should immediately remove it, if the little patient complained much of pain.

We often employ it in fracture of the shaft of the humerus, occasionally when the elbow-joint is implicated, and in one case of fractured olecranon it was used with very good result. It has been used here in fractures of

the lower end of the radius, when there has been no great displacement, with success.

In fracture of the femur, the long splint is always kept on for a month prior to applying the starched apparatus, and the long splint (without the pad) for a day or two afterward, until the apparatus has become thoroughly dry and firm.

Stiffness of the knee joint often happens after fracture of the femur, if the joint has been included in the starched apparatus; we only carry the pasteboard splints as low as the condyles of the femur, and do not include the joint.

In oblique fractures of the leg, we sometimes use M'Intyre's splint for ten days or a fortnight, and then put the case up in starch.

The starched apparatus has been found to answer very well in fracture of the leg immediately above the ankle joint.

I treated one case of Pott's fracture of the leg with it last year. The patient (a female) went out at her own request at the expiration of a fortnight, and ten days after the starch apparatus had been applied. She attended at the hospital at the end of the month, when the apparatus was removed. The bones of the leg were firmly united, and there was considerable freedom in the use of the ankle joint.

Part xxxi., p. 125.

American Splint.—A modification of Desault's long splint for fractures of the femur, is made by fitting the upper extremity exactly like a crutch under the axilla. It should extend to five or six inches below the external malleolus. A shorter splint may be fitted on the inner side, to extend from the perineum to a similar distance below the ankle as the outer splint. The advantages of this are, that extension is made from the entire leg, instead of the instep, and the axilla becoming a second fulcrum, relieves the perineum very much.

Part xxxv., p. 74.

Ununited Fracture.—Prof. Syme directs that, after removing the ends of the bones, the most perfect rest must be maintained, and this can only be effected by placing the whole limb under restraint. A hard firm case may be formed by covering the limb with pasteboard and starched bandages, by which means the slightest movement will effectually be prevented.

Part xxxv., p. 313.

Plaster of Paris Bandage.—In cases where the ordinary starch bandage is used at present, the plaster of Paris bandage may be advantageously substituted, as it is lighter and dries quicker, and hence is less liable to be spoiled by the patient's movements during the time of drying. It is made by rubbing dry plaster of Paris well into an ordinary bandage. The patient's limb is first enveloped in a roller, and over this the plaster of Paris bandage, slightly wetted, is applied. As each turn is laid on it is more thoroughly moistened, and then lies quite evenly and comfortably. Additional strips may be laid on, and supported by turns of the principal bandage at any parts where more pressure is required.

Part xxxvi., p. 287.

it fail, there is little hope ; for experience has taught us that no subsequent treatment is likely to prove efficacious.

GALACTAGOGUE.

Galactagogue and Emmenagogue Effects of Warm Applications to the Mamma.—Dr. McWilliam noted cures with the leaves of the ricinus communis and used in the Cape de Verd Islands, for producing a secretion. Tyler Smith, by a similar method produced a similar effect in the colder climate of London. Dr. Cormack believes that the heat was the chief cause of the excitement produced in the mammary gland, and that stimulating embrocations and cataplasms would produce power in a still higher degree. He says:

My object is to establish the following propositions:

1st. Warmth and stimulants applied to the mammae act as *galactagogues*.

2d. Warmth and stimulants applied to the mammae act as *emmenagogues*.

3d. The leaves of the boscarea (or the ricinus communis) act as galactagogues and emmenagogues ; but possessing any peculiar or specific power.

Warmth and Stimulants applied to the Mammae act as Galactagogues—Case—Milk restored to the Mammae.—A lady, when nursing her infant, about seven months old, was attacked with acute bronchitis of moderate severity, fully treated by low diet, and tartar emetic in small doses for four days the bronchitis was cured ; but the milk, which had been failing, almost entirely left the breasts. On the 11th

her breasts had become distended with milk. This lady was able to resume nursing, and to continue it with the assistance of a suitable diet.

Case—Hot Poultices keeping up the Secretion of Milk when this was not Desired.—A lady suffered, after her confinement, from a succession of abscesses and abortive abscesses in the breast. The surgeon who attended her treated her by antiphlogistic medicines, under which discipline she passed some wretched months, from mental and bodily depression, aggravated by hysterical attacks. The local affection did not seem to make any satisfactory progress; and the great obstacle to a cure was stated to be the impossibility of getting rid of the milk, in spite of saline purges being freely administered. The mammae during the whole of the period to which I refer, had been ceaselessly treated, night and day, with hot poultices and medicated fomentations. These applications were abandoned, and a generous diet prescribed. *In a few days there was not a drop of milk in the breasts;* and the abscesses, actual and threatening, had ceased to give any pain, and had, in fact, almost disappeared.

Warmth and Stimulants applied to the Mammæ, often act powerfully as Emmenagogues.—Warm clothing of the abdomen and limbs, hot hip-baths, and medicines which stimulate the bladder and rectum (such as ergot, cantharides, and aloes), have undoubted emmenagogue powers in properly selected cases of retarded or suppressed catamenia. It is equally true, though not so familiarly understood, that measures which act directly and primarily upon the breasts, such as warm clothing to the bust, and the application of stimulants, not only cause them to swell and throb, but likewise stimulate the ovaries, and cause the menses to flow. The practice adopted by some practitioners, of applying leeches to the mammae in amenorrhœa, owes its efficacy to fomentations used, and the irritation of the bites. C—P—, aged 19, complained of headache, languor, loss of appetite, and inability to attend to her usual business, that of a servant. She stated, that about five months ago, the menstrual discharge being then present, she incautiously exposed herself to cold in washing clothes in the river. The catamenia then suddenly ceased, and had not since returned; and from that period she had been constantly subject to ill health. She had consulted different medical gentlemen, and taken a great variety of medicine, with little advantage. I directed that the clavicular half of the right mamma should be covered with a sinapism. It was allowed to remain on for thirty minutes; and on visiting her in six or seven hours after its removal, I found the whole right breast considerably swollen, hot, and painful. The next morning the enlargement of the mamma was very much increased, the tumefaction having extended to the clavicle and axilla of the irritated side. There was no hard circumscribed or prominent tumor, but a painful, diffuse, elastic distention of the mammary gland, and surrounding cellular substance. On the evening of the day next succeeding the application of the sinapism, the catamenia appeared. The flux having continued for two or three days in moderate quantity, she found her health restored.

Injurious effects may so readily be produced by *excessive irritation of the mammae* upon themselves, upon the ovaries and uterus, and (as a consequence of the undue excitement of any of these organs) upon the whole system, that, in following the practice recommended in this paper, it is necessary to proceed with caution.

A poultice made of two or three parts of bread to one of mustard,

separated from the skin in an hour, in the interval abundance of cotton was

In endeavoring to not excite inflammation the patient complained of general fever, we prescribe rest in bed and hip-bath. In cases of rhoea, we may the inflammation

much nitrate of silver as might dissolve the more of this salt. I had nitrous acid, of sp. gr. 1.414, dissolved, and that 7 drachms of this acid, united with 20 grains. In preparing this acid solution excess of the latter was always added, in order that it might be insured. Some attention should be paid to the nitrous acid, for if it contain muriatic acid, it will be formed at the expense of the nitrate of silver. *Part v., p. 115.*

Face.—Mr. Obre says:

It does not sink from previous disease, it advances rapidly to the external integument. In this state there is a remedy which affords the most decided benefit. I allude to the application of the caustic. It has been used in this disease by Baron Isnard, and was recommended to me by Dr. Hennis Green, at whose recommendation I have frequently used it with marked benefit. The application of a red-hot iron to the face appears a formidable measure; but it may be done without producing pain. When I have used it, the patients did not complain of its application. A flat piece of steel being introduced into the side of the tongue to defend it, the heated iron is to be well applied over the entire gangrenous parts. When any spot has been left uncauterized, the gangrene, when arrested in other parts, will at this point be renewed. After the cautery has been used, a yeast poultice may be applied. In a day or two the slough is thrown off, when granulation and contraction of the wound soon take place.

Case.—The subject was a boy, nine years of age, living in an unhealthy situation, who suffered an attack of typhus, and was treated with bark and wine. When sufficiently recovered to sit up in bed, an ulceration of an ash-color was perceived on the external and back part of the gum of the upper maxilla. It had increased to such an extent, before being discovered, that the first two molar teeth were loosened, and soon fell out. Nitric acid was applied, the ulceration soon passed to the mucous membrane of the cheek, which was hard, swollen, and of a glazed appearance. In a day or two the ulceration passed through the cheek to the size of a half-crown piece. It presented a gangrenous appearance, and was very offensive. The hands required to be restrained to prevent his destroying a poultice of yeast which was applied. Although in this state, he sat up in bed and ate animal food. The strides of the disease were now alarming, advancing to the commissure of the mouth in front, and passing back to within an inch of the tragus. The parents having consented, the actual cautery was applied to the external diseased parts with little or no uneasiness to the child. For a week its progress was perfectly arrested, when it began to increase under the integuments.

The edges of the sore were irregular and everted, the internal parts of the mouth quite exposed (from the wound), with the superior maxilla, high as the zygoma. Being fearful that the lower eyelid would be destroyed, as the disease was extending in that direction, the cautery was repeated with the same success as previously, the slough soon came away, and granulation superseded; at times the double teeth on that side fell out. From this time the wound gradually improved, contracting by

appears that in some other cases they cannot be borne long enough to be successful. Thus, for example, more than twelve months ago, a lad, about fifteen, was brought with a very large ganglion on the back of the left hand. It was long in shape, and irregular, being narrowed, or partly divided at one part. On the hand being flexed or clasped, the ganglion would become fixed, and be made very tense. It materially weakened the hand and forearm, and caused, on the hand being at all strongly used, much aching pain. Not having a better instrument at hand, I introduced a very narrow bistoury under the skin at some little distance anterior to the ganglion, and passed it on through this, but unfortunately not far enough to pass through the other end of the tumor. I say "unfortunately," because the case illustrates what I think to be the general error in the treatment of ganglions by "puncture," as it is called. Thus, if you burst a ganglion by the old practice of striking it with the back of a book, the contents escape, not externally, but in the surrounding cellular tissue, where the thick glairy fluid which constitutes it, acts as a foreign substance, causing an increased action, by which not only the fluid itself is absorbed, but the sac so reacted upon is more likely to become obliterated. The operation, therefore, should be commenced on the subcutaneous principle, and the instrument carried through the distal wall of the sac, the fluid being pressed out through *that* aperture into the surrounding cellular tissue, instead of being squeezed out at a mere puncture in the surface. This practice has been, I believe, found uniformly successful by Mr. Liston, and it is that which he inculcates. To return to the case that I was describing. After squeezing out the contents of the ganglion, I applied a compress: the opening closed up, but there was still a sac and fluid left. After a little time, I passed a small seton through the tumor. On seeing the case on the third day, I found the inflammation to be considerable, and there was febrile disturbance. The seton was withdrawn, and bathing and poultices ordered. An aperient, and saline diaphoretic medicines were given, after which the case very speedily, and without any further trouble, did well. *Vide* "Bursal Affections." *Part xv., p. 173.*

G A N G R E N E.

Treatment of Gangrenous Inflammation.—Dr. Davidson brings forward two cases of gangrenous inflammation, in one of which there appeared, about ten weeks previously, a sore upon the inner surface of the prepuce, three days after sexual intercourse: the integuments around the gland gradually became much swollen, until at last two gangrenous spots appeared, "one in the situation of the primary sore, the other near the frenum, which rapidly extended over the body of the penis, involving and destroying the corpora cavernosa and spongiosa for about two inches. The urethra appeared to be opened to a considerable extent, the whole presenting a deep, foul, and irregular ulcer, the edges of which were indurated and shelving, discharging a bloody fetid sanies. Nitrous acid saturated with nitrate of silver, was ordered to be applied to the ulcer daily, with an emollient poultice." In a very short time, the phagedænic ulceration was checked. The other case was somewhat similar.

Dr. Davidson remarks:

Strong nitrous acid does not dissolve so much nitrate of silver as might be expected, and the weaker it is, it dissolves the more of this salt. I find by experiment that one ounce of nitrous acid, of sp. gr. 1.414, dissolves nearly 14 grains of nitrate of silver, and that 7 drachms of this acid, united to one drachm of water, dissolve 20 grains. In preparing this acid solution of nitrate of silver, a little excess of the latter was always added, in order that complete saturation might be insured. Some attention should also be given to the quality of the nitrous acid, for if it contain muriatic acid, chloride of silver will be formed at the expense of the nitrate of silver.

Part v., p. 115.

Gangrene of the Face.—Mr. Obre says:

If the patient do not sink from previous disease, it advances rapidly until it destroys the external integument. In this state there is a remedy which has produced the most decided benefit. I allude to the application of the actual cautery. It has been used in this disease by Baron Isnard, and was named to me by Dr. Hennis Green, at whose recommendation I have repeatedly used it with marked benefit. The application of a red hot iron to the face appears a formidable measure; but it may be done without producing pain. When I have used it, the patients did not appear conscious of its application. A flat piece of steel being introduced along the side of the tongue to defend it, *the heated iron is to be well applied over the entire gangrenous parts.* When any spot has been left untouched, the gangrene, when arrested in other parts, will at this point advance. After the cautery has been used, a yeast poultice may be applied. In a day or two the slough is thrown off, when granulation and contraction of the wound soon take place.

Case.—The subject was a boy, nine years of age, living in an unhealthy situation, who suffered an attack of typhus, and was treated with bark and wine. When sufficiently recovered to sit up in bed, an ulceration of an ash-color was perceived on the external and back part of the gum of the upper maxilla. It had increased to such an extent, before being discovered, that the first two molar teeth were loosened, and soon fell out. Nitric acid was applied, the ulceration soon passed to the mucous membrane of the cheek, which was hard, swollen, and of a glazed appearance. In a day or two the ulceration passed through the cheek to the size of a half-crown piece. It presented a gangrenous appearance, and was very offensive. The hands required to be restrained to prevent his destroying a poultice of yeast which was applied. Although in this state, he sat up in bed and ate animal food. The strides of the disease were now alarming, advancing to the commissure of the mouth in front, and passing back to within an inch of the tragus. The parents having consented, the actual cautery was applied to the external diseased parts with little or no uneasiness to the child. For a week its progress was perfectly arrested, when it began to increase under the integuments.

The edges of the sore were irregular and everted, the internal parts of the mouth quite exposed (from the wound), with the superior maxilla, high as the zygoma. Being fearful that the lower eyelid would be destroyed, as the disease was extending in that direction, the cautery was repeated with the same success as previously, the slough soon came away, and granulation superseded; at times the double teeth on that side fell out. From this time the wound gradually improved, contracting by

cicatriztion, and the boy eventually but slowly, perfectly recovered, as will be seen by the cast which I made two years after his recovery. He is, however, unable to open the mouth to a greater extent than the quarter of an inch, in consequence of adhesion of the cheek to the gum on the diseased side, which inconvenience I am desirous of removing by the knife.

Part ix., p. 183.

Spontaneous Gangrene.—M. D., aged twenty-seven, was admitted for gangrene of the left leg. The left foot was black and shrivelled, and the leg, to a definite line a little below the knee, mottled red and violet. On the discolored portion were several vesications. No pulsation in the left femoral artery; much pain on pressure in its course. She was in a very exhausted state, quite beyond all remedial means, and died in about a fortnight after admission. On dissection of the vessels in and connected with the affected limb, the left common iliac and external iliac arteries were in their natural condition. At the commencement of the femoral was an annular contraction, as if produced by ligature, and the cavity at this point was completely obliterated. Fibrinous coagula, adherent to the inner coats of the artery, filled the vessel for a few inches below the contracted portion. The following is taken from the remarks made by Mr. Teale on the case:

The form of gangrene which you have witnessed in this case, has been variously named senile, dry, sympathetic, and spontaneous gangrene. It was formerly supposed to depend upon a state of debility, more especially as regarded the circulation, and was therefore treated with tonics and stimulants; but the result of this mode of treatment was anything but satisfactory. The first great advance toward a more correct pathology, as well as to a more successful treatment of the affection, was made by M. Dupuytren, who advocated the opinion that the gangrene was dependent upon inflammation and consequent obstruction of the arteries.

The morbid condition of the arteries, observed by Dupuytren, undoubtedly performed an important part in the production of the gangrene; but I imagine that this distinguished surgeon has taken only a partial view of the subject, and has overlooked the importance due to a similar obstruction of the venous trunks in the production of gangrene. We know well that if we obliterate an arterial trunk by ligature, the circulation is continued by the collateral vessels, and the vitality of the limb is preserved, provided the veins remain pervious. We also know, that when the large venous trunks are obstructed with fibrin, an edematous condition, usually named phlegmasia dolens, is produced, but gangrene does not occur if the arteries are able to perform their functions. When, however, from any cause, the arterial and the venous trunks are simultaneously obstructed, gangrene results.

So frequently have I observed this coincidence, that I have been induced to regard the simultaneous obstruction, both of the arterial and of the venous trunks, as the essential cause of this form of gangrene. The case which has given rise to these remarks is an additional illustration of the fact.

The value of this treatment recommended by M. Dupuytren, namely, the substitution for the tonic and stimulant treatment, formerly in vogue, of a moderate antiphlogistic system, combined with soothing and emollient applications, I have had repeated opportunities of verifying.

Frequently have I witnessed, even in aged subjects, most striking immediate relief of pain from the abstraction of a few ounces of blood; the opiates, stimulants, and tonics had proved unavailing; and by this treatment I have not unfrequently seen threatened gangrene arrested in existing gangrene arrested in its progress. But I need scarcely say that in adopting this moderate antiphlogistic treatment, regard must be had to the condition of the patient. If the skin be of somewhat higher temperature than natural, the cheeks flushed, the pulse not feeble in force, although the patient be advanced in years, and apparently shattered by the disease, the repeated abstraction of small quantities of blood may be employed with safety and advantage; but if the pulse be flapping, as in the case you have lately witnessed, we have no alternative but to endeavor, by the use of stimulants and counter-irritation, to prolong life for a brief period.

The pathological principle which I have now been explaining, is of important bearing upon the operation for popliteal aneurism. Few operations are more simple and easy of execution than the application of a ligature to the femoral artery at the part where it is about to pass behind the knee; but if you consult the records of surgery, you will be surprised to find when the free anastomoses of the arteries of the lower extremity are considered, how frequently this operation has failed from the occurrence of gangrene. This is undoubtedly owing to the close proximity of the femoral artery and vein, from which circumstance the coats of these vessels are liable to suffer violence during the operation, or they may subsequently become implicated in the inflammation excited in the vessel by the ligature. From these causes the vein may become obstructed by the deposition of fibrin, while the cavity of the artery is obliterated by ligature, so that both the arterial and venous trunks are obstructed, we have almost invariably that gangrene is produced. The knowledge of this fact strongly inculcates the importance of our using the utmost care to avoid doing violence to the vein while we are applying a ligature to the artery. As should the parts implicated in the operation hereafter become painful or tense, it is equally important that we should guard against the matter being pent up within the wound, by allowing it the opportunity of escaping freely in the course of the ligature. I have also known gangrene follow the operation for popliteal aneurism from a cause which I have already mentioned, and which is altogether beyond our control. A few years ago I tied the femoral artery for a popliteal aneurism of unusually large size. The tumor was seated strongly in every part; its contents were almost entirely solid, and there had been but little deposition of fibrin. The ligature was applied without the slightest delay or difficulty, and with the least possible disturbance to the surrounding parts. On the following day the tumor was very little reduced in size, but the pulsation had entirely ceased, and the tumor was perfectly consolidated. The patient complained of no pain in the leg. On the next day the foot was discolored, and gangrene was evidently commencing. After a few days the foot and half the leg were gangrenous, and I amputated the limb above the knee. On dissecting the amputated part, the principal veins of the leg, as high as the tumor, were all filled with coagulum; above the tumor the femoral vein was pervious and healthy. A section of the tumor showed it to be perfectly consolidated by the deposition of concentric layers of fibrin. In this case it was evident that the sudden conversion of this large, soft, yielding tumor

into a firm unyielding mass, had caused such a degree of compression of the popliteal vein as to arrest the flow of blood through it, and venous obstruction in addition to the arterial being produced, gangrene resulted.

Part xii., p. 176.

Hospital Gangrene.—The liquor arsenicalis, diluted with an equal quantity of water, is a very valuable remedy. Blackader tried it with very considerable success. He used to wash the parts with sesquicarbonate of potash, and, after removing as much of the pulpy substance as he could, he dipped lint into the solution and put it on the part, changing the lint every half hour. You might, perhaps, suppose that by applying arsenic to the wound there would be a danger of poisoning the part, but it is found that gangrene produces in the flesh an insusceptibility of injury from poison applied in this manner. The best application is strong nitric acid, which must be applied till the slough becomes of an ash color, dry, and insensible; if the sloughs are thick, incise them before the acid is used. Give opium when the escharotic is applied.

After the sloughs are removed, granulation begins over the part, which is sometimes attacked again, when you must repeat the treatment with nitric acid. Under the frequent return of these attacks patients will, however, often sink.

Part xvi., p. 304.

Senile Gangrene.—Dupuytren saved three-fourths of his patients by bleeding; but in this country the practice has not been so successful. Bark is inefficient; ammonia and musk are useful; so is opium. Give half grain doses of muriate of morphia every four hours; and give brandy or wine. Envelop the limb in carded wool, and apply fomentations, or poultices, and use chloride of lime to remove the fetid smell.

Part xvi., p. 304.

Treatment of Hospital Gangrene.—[In the general treatment, good diet, opium, and stimulants are required. Let the diet be nourishing, but not solid if the tongue be coated. Give opium in such doses as to relieve the pain; the quantity required is very variable, even up to two grains every hour or two; if there is much heat of skin, give it as Dover's powder.

Give ammonia freely; if the skin is hot and there is much inflammation round the sore, give it as a saline draught, with five grains of sesquicarbonate in excess. As to the administration of wine, be guided by the pulse; it is seldom required at the commencement of the disease, and sometimes may be dispensed with even in the later stages. Regulate the bowels with a rhubarb draught or a colocynth pill. As to local treatment Mr. Hawkins says:]

With regard to local remedies—if the ulceration be purely phagedænic, or if it be attended with but little sloughing and is painful, soothing applications are the best. A drachm of the extract of conium to a pint of Goulard's lotion is a very good form of lotion, and was used in both of my patients; and if the pain be very severe, you may add ℞vi. of Scheele's prussic acid. The solution of opium is uncertain in its effects, and often aggravates instead of allaying the pain of an ulcer. Sometimes you will find plain water answer better than medicated applications; it may be applied cold if there be much redness around the sore; it had better be used tepid, with oiled silk over it, if the ulcer be weak, and the redness not vivid. If the ulcer have rather more of a sloughy character, stimulants

by water, the disease is sometimes accompanied by a but moderately sloughy that the charcoal poultice may be useful; they are but seldom used now, thmerly.

In the third form, not phagedenic, nor sloughing form; that is, but gangrenous, the gangrene sometimes that unless it be stopped at once it may be attended danger to the patient. Various applications have been whole surface next to the gangrenous textures and underneath the sloughs while they are separating, it may be exposed when the dead portions come away.

The strong mineral acids are the best; the nitric is The former is most used, and may be applied by taking care to touch every part of the sore, so that part beneath may be affected by it; watch when there be any part left with a disposition to slough, apply the acid again. None of our patients, I know enough to require this plan of treatment, which is ever use it in sloughing phagedenic sores, but it is gangrenous form of disease.

When the disease has ceased, the ulcers may be away by various applications; diluted nitric acid wash, or black wash, or whatever else seems appropriate of the ulcer.

Hospital Gangrene.—Hospital gangrene had no epidemic disease, in St. Bartholomew's Hospital within of the present medical officers; and diffused inflammation membrane, in so severe a form as here described, is currence. These two singular affections broke out were confined, almost without exception, to a few

minute. In some cases a stinging, burning sensation was felt in the wound. Within four-and-twenty hours, the edges, which had become undermined, everted and eroded, separated, and there was exposed a glazed surface, covered by a tenacious grey or fawn-colored secretion, which in thirty-six hours became a circular, buff-colored slough. The sore, surrounded by a dusky red zone, extended both in breadth and depth, by a mixed process of sloughing and of phagedæmic ulceration, and rapidly disorganized the soft parts down to the subjacent bones. A thin and extremely offensive discharge was secreted; and in many instances the pain became so severe, that patients compared it to the "burning of a hot coal." The spontaneous subsidence of the disease was marked by the disappearance of the dusky-red discoloration of the skin, and by the rising of the pulse. The secretion lost its fetid odor and became more puriform; the slough, which, if large, was dry and black, separated, and left a granulating and extremely sensitive surface, which cicatrized very slowly.

The only local treatment of any avail in arresting the progress of the disease, was the free application of the undiluted nitric acid to the surface and to the edges of the sore. It sometimes happened that the eschar thus formed separated in a few days, and left a perfectly healthy surface, which healed without an unfavorable symptom; but in other instances the remedy failed; the sloughing process recommenced, and local applications became of secondary importance. The common bread-and-water poultice, or the charcoal poultice (of which the latter is extremely useful in correcting the horrible fetor proceeding from the sore), was the most comfortable to the feelings of the patient. Opium was given in large doses, to relieve pain, and to procure rest. Quinine and ammonia were administered with advantage, as the stomach would bear them. The patients, who almost without exception retained the appetite, were allowed meat, with a moderate quantity of beer, wine or spirits; they were separated as much as possible one from another.

In attempting to investigate the causes which gave rise to these maladies, care must be taken not to confound hospital gangrene with sloughing phagedæna, as witnessed in patients suffering from syphilis, or broken down by intemperance and irregular habits. In both classes of cases the sore is characterized by a foul surface, rapidly spreading by a mixed process of ulceration and of sloughing; but the latter disease occurs in isolated cases, and is confined almost exclusively to the lowest order of prostitutes. Hospital gangrene spares neither the young nor the old, the temperate nor the intemperate; attacking wounds of inconsiderable extent, it produces a frightful sore, which frequently spreads in spite of all efforts to restrain it.

Part xvii., p. 294.

Senile Gangrene.—Prof. Syme considers the best plan of treatment is to lower the tendency of excitement throughout the system, by enforcing a strictly vegetable diet, abstinence from every kind of stimulant, and the maintenance of perfect quiet in the horizontal posture. Apply linseed poultices, and so long as nocturnal pains continue give muriate of morphia freely.

Part xvii., p. 296.

Traumatic Gangrene.—Mr. Vincent would not amputate for traumatic gangrene. He would give food when the stomach can bear it, and stimuli if required.

The cases which M. Larrey represents to have been saved by amputa-

tion were actually rescued from death by the administration of brandy. This liquor, in fact, he regards as the great resource for sustaining the action of the heart in these circumstances, and beyond all comparison the best means. Some years ago, he states that he tried the comparative efficacy of brandy and ammonia; and the superiority of the former was marked and distinct. Ammonia, he thinks, impairs the action of the stomach more than any other agent. This impairment is the very thing to be avoided.

Ammonia also impairs the secretions, and in so doing causes great evil. To maintain them in such circumstances, Mr. Vincent recommends the use of mild preparations of mercury with antimony. At all times where the secretions are bad, it is necessary to keep up regular evacuations, which he maintains not to be weakening, according to the recent doctrines of some speculative innovators, but which he knows to be necessary for preserving health.

Part xix., p. 206.

Hospital Gangrene.—Remove the patient from the source of contagion; let him be kept cleanly, and have a good supply of fresh air. Destroy the diseased part with the actual cautery, or by the application of the pure mineral acids, or a solution of arsenic or of chloride of zinc, or other caustic which shall penetrate the sloughing parts and destroy a thin layer of the unaffected parts beneath them. On the separation of the sloughs, treat the sores upon general principles. Be guided as to the constitutional treatment, by the kind of fever which the symptoms represent; using emetics, purgatives, and the early abstraction of blood, if the type is purely inflammatory, and less vigorous means, if it is of a different character.

Part xix., p. 207.

Observations on Gangrene.—[After mentioning the terms ordinarily used to express varieties of gangrene, as *dry*, *humid*, and *traumatic*, Mr. Guthrie says:]

These words or terms do not convey to the mind of the surgeon any real practical distinctions, yet practical distinctions are the points required; and to effect this object, I have made one which is on many points of the greatest importance, because it leads to an essential difference of practice, viz., into *constitutional* and *local*. Surgeons have, I am aware, spoken and written of chronic and idiopathic mortification, or certain states depending on internal causes, which have occupied a considerable time before they gave rise to any great development of evil; whereas, the difference between local and constitutional mortification may depend on a few hours—a time so short, and yet so precious, that it becomes a matter of life and death in many instances.

Constitutional gangrene may be humid or dry, whether it arises, as it were, idiopathically, following a spontaneous inflammation, or in old age, in which it appears almost as a first symptom. Local mortification may be either humid or dry, although, when it is humid, it arises chiefly from the warmth of the applications by which it is surrounded, causing it to be also the commencement of the process of putrefaction, whilst, if left to itself, or nearly exposed to the air, it would become shrivelled and dry.

Examples of humid, or the common kind of mortification, following *ripelae*, are seen sufficiently often in all hospitals to render a description here unnecessary, and I shall confine my observations to local morti-

fection only. The purest example of local mortification is when it occurs from the supply of blood being cut off from the foot by the division of the great vessels in the thigh.

The surgery of London was not as far advanced in 1823 as the surgery of Toulouse in 1814. In the first place, these gentlemen did not know that the lower end of the femoral artery, when wounded, always bleeds black blood, not scarlet, like its upper end, so that you may have, and will have, two kinds of blood from the two ends of the same artery. This was a fact well known on the banks of the Guadiana, the Tormes, and the Garonne, but not on those of the Thames. So it was with the equally important fact, that arresting the flow of blood in the upper part of an artery would not prevent its bleeding, if wounded, at its lower part.

The third point, or that of the first appearance of mortification, is not so fully acknowledged, and that because it is not understood. The accident is not seen as often in all England in seven years as it was in a day in the plains of Estremadura and Castile. The existence of mortification is not acknowledged, because the part is neither *red* nor *black*, which it is presumed all mortifications ought to be. It is, in reality, the reverse, or *quite white*.

In all cases like those I have referred to—and I have reported many in my record on wounded arteries—the foot first suffers, and the failure of the circulation is usually remarked in the great toe, or in the ends of the other toes. It may so remain for days, and then extend as far as the instep, or ankle, when it frequently stops for a short time, and then proceeds as high as the calf, after which life is soon destroyed. In many cases the extension of the mortification is more rapid at the beginning, and soon proceeds as high as the calf of the leg, at which part nature seems often to make a great effort to resist its further progress. The fact I state; the cause, I presume, must depend on the circulation around the knee. It is on account of the fact that I have selected this part as the one at which amputation should be performed.

Amputation at or above the middle of the thigh is a very dangerous operation at all times, and a very unsuccessful one in all cases of wound of its artery, accompanied by mortification of the foot and leg. The person does not die under the operation, but the stump does not take on the action necessary for his recovery. The mortification had become constitutional instead of being local before the operation was done. The stump swells, opens out, looks white and discharges usually but little, and never healthy matter. The system generally suffers in proportion, and the patient rarely survives beyond three or four days, if he live so long. To prevent this result, amputation is to be performed as soon as mortification is so established as to be no longer doubtful. Under the most favorable circumstances, the person must lose his toes, or his foot at the ankle, and an amputation a little higher, leaving room for an artificial leg, does not make the matter worse, more particularly as the cases of recovery, with the loss of the toes or the foot at the ankle, are not forthcoming, to prove the propriety of doing nothing, or for waiting for what is called a line of separation.

The patient is not aware of anything being abnormal in his foot, the sensibility and capability of motion being nearly as natural as usual. The temperature of the part, under the ordinary circumstances of being in bed,

is scarcely diminished—often not perceptibly so to the touch of the observer; and when it is less, it is not beyond a degree or two of the thermometer. It is the change of color which marks the commencement of the mischief to the initiated. The flesh-color has changed to the white of a bad tallow candle; and as the mischief advances on the instep to the leg, this white becomes spotted like the best mottled soap. It does not turn a red or purple black, like that of a humid mortification, unless the part preties under the application of hot poultices, etc., but gradually shrinks and dries. The long tendon of the great toe seems to stand out along its back, and the skin becomes brown over it, and shrivelled. The person, nevertheless, can bend and extend the toe, and feel and describe his sensations when it is touched. There is no redness at first, marking the spot beyond which the commencing mortification does not extend; there is merely the difference between the natural and the altered color of the parts. This is followed by some little swelling and slight redness, the precursors, in general, of the further progress the mortification is about to make. As time passes away, the course of all the tendons in the foot is marked by the discoloration of the skin over them, and the whole skin gradually becomes browner, dark colored and dry, unless artificial heat changes the chemical action going on in the part, dead as to circulation, but yet alive as to motion and sensibility, although both are at this period impaired.

This mortification is local, in the first instance; how long it may remain so depends, in a great degree, on the excitability of the constitution of the patient, and is of longer or of shorter duration. There is always, however, I shall say, as a general rule, sufficient time for its continuance as a local disease, to allow of the commencing mortification being clearly perceived, and its probable extent ascertained, at an early period.

What, under these circumstances, is the precept to be followed? Is it the old Hunterian one, of waiting for the cessation of the mortification under the means employed, and the formation of a line of demarcation, or is it the precept I have laid down for you, of amputating immediately, and below the knee? My decision is for the latter, and I hope it will always be yours.

I must impress upon you, however, that although mortification too frequently follows an injury of the main artery, when suddenly committed, and without any previous disease in the limb, it does not always do so; and that attention to the direction I have elsewhere given, of keeping up a gentle but continual friction, by the hands of assistants, on the lower part of the extremity in danger, may tend to prevent it. It is a proceeding which should never be omitted in any case where a doubt exists as to the probable occurrence of the mischief which may be expected.

Part xxi., p. 330.

Attacking the Extremities of the Young.—In the young, the pathology seems to be obliteration of the arterial trunks. In the old it is from ossification of the vessels.

How is the obliteration brought about in the young? Mostly, if we do not mistake, as a consequence of arteritis, the vessel becoming plugged up with the fibrinous exudation excited by the inflammation of its coats. And here some analogy is seen to exist between gangrene of the feet, and softening of the brain; for in both cases does the disorganization of the whole

or a portion of the part affected, depend upon a diminished or totally arrested supply of arterial blood.

Dr. Kirkes thinks that by actual cases, post-mortem examinations, reasoning, and analogy, he has established that—"1st. Fibrinous concretions on the valves of the heart admit of being readily detached during life. 2d. That if detached and transmitted in large masses, they may suddenly block up a large artery, and thus cut off the supply of blood to an important part. . . . 3rd. That the effects produced and the organs affected would be in a great measure determined by the side of the heart from which the fibrinous material had been detached; if from the right side, the lungs would bear the brunt of the secondary mischief; but if, as was most commonly the case, the left valves were the source, the mischief would be more widely spread, and might fall on *any part*, but especially on those organs which were largely and directly supplied with blood from the left side of the heart, as the brain, spleen, and kidneys."

In the treatment of spontaneous gangrene in the lower extremity, it is proper to wait until a line of demarcation is formed, so as not to run the risk of having a stump with diseased arteries. But we have seen, in some instances, the sphacelated parts ulcerate away completely, and the stump formed without the intervention of the surgeon's knife. There is, we fear, a certain amount of risk in adopting this course, for the long process of separation between living and dead portions of the limb lays the patient open to that fearful complication known under the name of purulent absorption. Nor is this all, for the noxious gases resulting from the decomposition may be very baneful, both to the patient himself and to his fellow-sufferers in the same ward, and thus do incalculable mischief. The surgeon has therefore to use his powers of discrimination—and seize upon the moment when the line is sufficiently marked to leave no doubt upon the soundness of the vessels above, and amputate a little beyond the ulcerated points.

Part xxvi., p. 160.

Gangrena Senilis.—Lessen the tendency to overaction by soothing means; confine the patient to bed; debar him from animal food in every form, with the exception of milk. Supply him with doses of morphia in proportion to his pain and restlessness. Avoid giving him stimulants, and cover the affected part with a linseed poultice. Under this plan the distressing symptoms gradually disappear, the slough ceases to extend, and the sore cicatrizes soundly.

Part xxvii., p. 351.

Gangrene—Spontaneous.—As all these cases are deficient in power, a stimulating rather than depleting plan must be pursued. Large doses of opium will be well borne, and are very beneficial. The best local stimulation is warmth by cotton wool.

Spontaneous gangrene does not always take place in parts at a distance from the heart; cases have occurred where the nose, for example, has been the part so affected. The pathology and the therapeutics in these cases are exceedingly interesting, and it is important to know what is the line of treatment to be pursued in such cases. The surgeon generally waits until the line of demarcation has formed before he uses the knife, except in traumatic gangrene, where the measures must be prompt and effectual.

Part xxix., p. 208.

Gangrenous Sores—Disinfecting Powder.—Mix and rub together 100 parts of plaster of Paris, and from 1 to 5 parts of coal-tar; they form a grey

powder with a bituminous odor. This powder may either be used as it is or made to cohere into a sort of ointment by olive oil, when it may be spread on lint and used as a dressing. It is found that this powder absorbs the pus and other morbid products engendered on the surface of scabs, and moreover destroys all offensive odor.

Part xl., p. 141.

GASTRALGIA.

Ioduret of Silver.—The following formula is recommended in gastralgia: R Ioduret of silver, nitrate of potash, each 10 grains. Pulverize together thoroughly. Add liquorice powder, half a drachm; white sugar, 20 grains; mucilage gum arabic, q. s. Make into 40 pills. Let the patient take one thrice daily.

Part vi., p. 11.

Powdered Hemlock.—M. Lisfranc has a high opinion of this remedy as an anti-nervine in the gastralgia of women suffering from uterine affection—beginning with a grain every morning, gradually increased to four.

Part vii., p. 143.

Gastralgia.—In many forms of gastralgia the administration of a teaspoonful or two of powdered charcoal (poplar wood the best) before meals, two or three times a day, is very useful. It may be given in the form of pills or lozenges, or made into a paste with water, or spread upon bread.

Part xxi., p. 148.

Gastralgia—Treatment by the Subnitrate of Bismuth, united with Belladonna.—According to Professor Unizergues, of Montpellier, the subnitrate of bismuth is more efficacious when united with belladonna. He orders this mixture in painful affections of the stomach, properly so called, and which are isolated from all inflammatory complication, and against affections of the stomach which are connected with a positive disease, or a general morbid state, like chlorosis, for instance. The professor generally employs the following formula: R Subnitrate of bismuth, ten grammes; extract of belladonna, one gramme; make forty pills, two to be taken at night and morning.

Part xxiv., p. 161.

GASTRODYNIA.

Gastrodynia and Gastralgia.—The first of these terms should be applied to such pains in the stomach as are of a rheumatic, and the second to such as are of a purely neuralgic nature. The pain in both is almost always much more severe than in genuine chronic gastritis; and yet it is usually not increased, but is often relieved, by pressure on the epigastrium. Moreover, there is no feeling of heat, nor is there much thirst, and the pulse is not quickened. Generally there is but little derangement of the digestion; and almost all kinds of food may be taken without any decided effects either as to increasing or mitigating the pain. In genuine gastrodynia we can usually discover that there has been the retrocession or transport of a previous rheumatic affection of some of the joints, etc. Hence a certain degree of phlogistic action may be coëxistent with the pain; and so, however, with gastralgia.

As to the treatment, opiates are, on the whole, the most efficacious remedies. In many cases they require to be administered in large doses. Some of the diffusible antispasmodics, such as ether, camphor, the liquor Hoffmanni, etc., are often useful. The subnitrate of bismuth is an admirable preparation in numerous cases. Sometimes, more especially where the disease is of a rheumatic character, the use of blisters, applied either to the epigastrium or to one of the lower limbs, is necessary. There is no remedy so generally beneficial, nay, even necessary, as opium in such affections; as, for example, in cramps, colicky pains, dysentery, as well as in gastralgia. In some cases it must be associated with blood-letting; in others, with laxatives and emetics; and in a third set, with bitters and tonics. Medical men have been, especially during the last thirty years, far too timid in the employment of this admirable remedy in the treatment of disease. They forget that often, very often, nature only requires to be freed from present pain to enable her to restore a disordered function to a healthy condition, and a suffering organ to the regular performance of its duties without distress or inconvenience.

[In Dr. Debreyne's treatment of gastrodynia and gastralgia of the stomach with opium, he might have referred more particularly to the prussic acid, which, when *properly prepared and preserved*, we have found so efficacious in this country, and especially when combined with small doses of the acetate of morphia, as the eighth or the sixteenth of a grain, three or four times a day. We have seldom or never had occasion to give *large* doses of opium in these cases, as we almost invariably succeed with these minute doses of morphia, when properly persevered in, and assisted by proper regimen. And when we fail with these remedies, we have recourse to Dr. James Johnson's favorite remedy of nitrate of silver, given in small doses, which will be found a most valuable, and we might almost say certain, remedy in such cases.]

Part i., p. 23.

Belladonna, Hydrocyanic Acid, etc.—Dr. Waller stated, during a discussion in the Medical Society of London, that he had seen the belladonna, in conjunction with hydrocyanic acid, in the proportion of one quarter to half a grain of the extract to three minims of Sheele's preparation, four or five times a day, of great benefit in cases of severe gastrodynia.

Dr. Garrard, also, had found belladonna and quinine of service in gastrodynia.

Part ix., p. 75.

Gastrodynia.—[Dr. Dick observes that the term gastrodynia, as also the terms gastralgia and cardialgia, are sometimes used to imply uneasiness in the epicardiac region, when the stomach, if affected at all, is so only in a secondary or subordinate manner. He says:]

If there is heartburn, with sour eructations, we try at first a simple antacid, as ten or fifteen grains of carbonate of potass, in, if you will, two or three ounces of some aromatic water. If this is not sufficient, and an alterative alkali is indicated, the carbonate of magnesia may be tried. If the tongue is furred, and its edges red; the breath heavy, hot, and fetid; the bowels irregular; the urine turbid and high-colored; and the stomacic uneasiness rather dull than acute, but constant—it is presumed that the gastric mucous surface, probably also the duodenal and jejunal mucous membrane, is in the same condition as that of the tongue—sub-inflammatorily congested. In this case, if the patient is young and plethoric, the treatment is simple. The compound infusion of senna, with the sulphates.

of magnesia or potash, until the tongue cleans and the stomach-pain subsides, are all that is necessary.

The same symptoms may, however, occur in arthritic and rheumatic subjects, and persons considerably past middle life. Here a more cautious treatment is required. The neutral salts are to be avoided. Extract of rhubarb, and blue pill, must gently correct the secretions and promote excretion, and the infusion of senna must be combined with that of rhubarb and with the tincture of cardamom, or the compound spirit of horse-radish. To the extract of rhubarb and blue pill, I have often seen advantage from the addition of extract of colchicum, in such proportions as two or three grains of rhubarb plus a grain and a half of blue pill and extract of colchicum respectively.

If the cardialgia arises from the ingurgitation of bile, as evinced by extreme nausea, bitterness of taste in the mouth and bilious retchings, we ought to commence with the induction of vomiting, and thereafter give draughts, composed of decoction or infusion of taraxacum, with sulphate of magnesia. This last measure is, however, only to be resorted to if the stools are pale and inefficient, and the hepatic region full and tender; for in this case we must presume that the hepatic veins are congested, and require to be stimulated to evacuate their contents. But if, along with bilious vomiting, there are bilious stools, the treatment, after the emetic, should consist of little else than diluents. If the bile be freely and spontaneously discharging itself, there is no use in exasperating the obviously already excited liver by purgatives.

If the cardialgia is flatulent, draughts of a mixture composed of four or six drachms of the compound tincture of ammonia, and of the tincture of asafoetida, respectively, with six or eight ounces of the compound infusion of senna, will dispel the cause.

The cardialgia of pregnancy has no cure but parturition. That which is owing to interrupted menses or suppressed hemorrhoids, long established, must be treated by leeches applied to the anus or groins, by hot pediluvia, and by sufficient and prudent purging. The cardialgia of old subjects, if plainly traceable to suppressed hemorrhoids, must be treated promptly. Aloes must be given in the purgative, and stimulant suppositories inserted.

Perhaps the two last kinds of cardialgia ought more properly to be considered as cases of gastrodynia or gastralgia. *Part xviii., p. 114.*

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GLANDERS.

Case of Acute Glanders—Recovery.—It is generally admitted that glanders may be communicated from the horse to man. The following case is an example in proof: W—, a horsekeeper, aged 58, was admitted into the Paddington Infirmary. His face generally was swollen and suffused; especially in the submaxillary region. A large quantity of saliva was pouring from his mouth, his breath was extremely fetid and sickening, his gums were swollen, his teeth were loose, and his nostrils were filled with a thick glutinous secretion, which was with difficulty removed. From destitution he had been accustomed to sleep in stables, or wherever he could get a shelter, and from this circumstance he had undertaken the charge of some glandered horses. He got progressively

worse, the swelling increasing under the jaw to an enormous tumor. He broke out into profuse cold sweats, but he had no rheumatic pains, nor any local affection of the face, nose, or salivary glands. "Now this seems to be a case of acute glanders, and yet it so differs from other reported cases, as neither ecchymoses, gangrene, nor pustules were observable on the mucous membrane, neither was there any specific affection of the lymphatics or cellular tissue. The enfeebled state of his constitutional powers from previous destitution, seems to have been the chief predisposing cause.

"*Treatment.*—I had no reasonable expectation," says Dr. Mackenzie, "of the patient recovering, nor had he, or any one who was present at the time when I first saw him; and yet in twenty-four hours he was comparatively out of danger. Now this change cannot be ascribed to any improvement in his sanitary condition consequent upon coming into the hospital. For, in spite of wine and other assistance, he was worse than than when he was admitted. Hence I think that the improvement which took place must be mainly attributable to the treatment which may be thus recapitulated in the order of sequence. 1st. An incision in each of the Whartonian ducts. 2dly. An emetic of ipecacuanha. 3dly. Sesquicarbonate of ammonia in water hourly, as concentrated as it could be swallowed. 4thly. An opiate at bedtime, with wine and nourishment, in such quantities as the patient could be prevailed upon to take.

"The incision was made in the Whartonian ducts on account of their being much distended, and from an impression that their orifices were closed from the swollen state of their parietes. It gave immediate relief to the patient, by allowing a free escape of a large quantity of pent-up saliva, and the swelling and tension of the parts were at once lessened by it. The emetic was considered to be indicated by the existence of gastric derangement throughout the progress of the case, which was manifested by a constant disposition to sickness, and the inability of the patient to retain anything upon his stomach. It was also given for the purpose of producing reaction, and rousing the constitutional powers by its operation upon the ganglionic nervous centres.

"But the principal reliance was placed upon the frequent administration of the sesquicarbonate of ammonia *in a concentrated form*. This remedy, and this mode of exhibiting it, were suggested by the good effects which I had seen it produce when so given in the severe affections of the throat, which are met with in malignant scarlet fever. Two drachms of the carbonate of ammonia are dissolved in five ounces of water; the patient to take two teaspoonfuls every two, three, or four hours, according to the urgency of the symptoms. It may be administered in erysipelas, rubeola, scarlatina, urticaria, roseola, and erythema, with all their varieties."

Part xxiv., p. 44.

GLANDULAR AFFECTIONS.

Inflammation of the Glands in the Groin.—Sir B. Brodie discourses as follows:

Caustics may often be used very advantageously for the purpose of destroying diseased lymphatic glands. A man has chronic inflammation and enlargement of the glands in the groin, forming a considerable tumor.

The skin over them ulcerates, forming at last a large ill-conditioned ulcer, which will not heal. What is the reason of this? Because no ulcer will heal unless it has a healthy basis, and here the basis is a mass of diseased glands. These diseased glands may take a long time to recover themselves—not merely months, but one or two years—and as there are plenty of glands to spare, there is no harm in destroying them. You may effect this by the caustic potass, but not very well; you want some kind of caustic which will lie in the substance of the diseased glands, and destroy their inner structure as well as their outer surface. The form of caustic I am going to mention was used by the late Mr. Pearson, from whom I had the prescription. It consists of one ounce of crumb of bread, two drachms of oxymuriate of mercury, one drachm of red oxide of lead. These are to be mixed together, kneaded with the fingers, and formed into a sort of paste. The paste should be rolled into little conical troches, and these, if left to dry, become hard like bread seals. These troches may be stuck into the enlarged glands like pins into a pincushion. They produce no effect at first, but in the course of a little time they begin to act, and the patient knows this by the pain produced. This lasts for some hours, and if a sufficient number of the troches be employed, the whole of the gland is at once destroyed. If any portion remains not destroyed it is easy to effect it by repeating the process. I do not know whether the red-lead answers any useful purpose; I suppose not, but I found it in the original prescription, and on all occasions, where I find a particular prescription to do just what is wanted, I am unwilling to alter it.

Part iii., p. 71

Glandular Enlargements in the Groin and Axilla of Young Persons.—Treatment by Caustic Potass.—Dr. Darley mentions a form of constitutional or sympathetic enlargement of the glands of the groin, frequently met with in young men, and not the consequence of venereal virus, but rather the effect of a weakened and cachectic constitution. This tumor is very indolent in its nature; a long time elapsing before suppuration is established, and resolution is not a common termination. Dr. Darley treats these tumors by making a tolerably sized eschar with caustic potash in the early stage, and covering it with a small poultice. The tumor will be found to have disappeared when the eschar separates.

Allied to this is a tumor often met with in the axilla of young persons. A young man applies for advice, with the arm either in a sling or supported by the other hand, and the shoulder depressed and pushed forward, and there is much anxiety and suffering in his countenance. If this be treated in the common way, we have to wait long before it suppurates; and if it be opened, only a small quantity of thick pus escapes. The opening will soon close, and the abscess point in another direction, leaving sinuses, which are tedious in healing. Dr. Darley treats such tumors by making a small eschar with caustic potash in the very beginning, when they are hard and indolent. They must not be mistaken for the acute abscess frequently met with in this situation, and easily treated by incision.

Part xxiii., p. 297.

Glandular Enlargements.—*Vide* Selections from Favorite Prescriptions, Art. "Medicines."

Obstruction of the Ducts of Salivary Glands.—[Diseases of the salivary glands are little noticed by medical writers, but, in fact, with the

exception of that form of inflammation of the parotids called mumps, and after the administration of mercury, we seldom see them affected. Suppuration is very rare, as are also tumors, which, moreover, generally affect these glands only secondarily. Cretaceous deposits and obstructions of their ducts, from these or inspissated secretions, are sometimes found. Ranula is now supposed to be an encysted tumor, having no relation to the submaxillary gland, other than that of propinquity. A second form of this may occur in the mylo-hyoid space, not projecting so much into the mouth as externally.]

A consideration of two or three well-known facts cannot fail to make us regard the frequent occurrence of this sudden accumulation, as by no means improbable, and also lead us to anticipate the time at which they might be expected to take place.

The existence of salivary concretions is one of these facts; it must not, therefore, surprise us if at times they occupy and block up the small ducts which carry off the saliva from the glands. Again, the secretion of saliva is acknowledged to be pretty copious. Authorities vary as to the quantity secreted in twenty-four hours, some stating the amount as low as twelve ounces, others as high as eighteen. Though the secretion proceeds constantly, many things are known to increase the amount and rapidity of production, and especially the presence of food in the mouth, and the process of mastication during a meal. We have then but to suppose obstruction of the duct to take place about the time of taking food, and we have all the circumstances present necessary for establishing such an attack, if only the ducts are capable of sudden and rapid dilatation; this can be proved by experience alone, and however much we might feel inclined to say with Mr. Erichsen, when speaking of ranula, "It is not easy to understand how so small a duct can be dilated to so large a size as is occasionally attained by these tumors," I think the perusal of the following case will leave no room to doubt the fact.

A youth was eating his dinner, and in the midst of it began to complain of stiffness of the mouth and difficulty of deglutition; his mother very soon noticed a distinct swelling under the jaw. As some of the inmates of the house were at the time suffering from mumps, this was supposed to be a sudden attack; but on account of the suffering it caused, and its rapid growth, I was sent for. On examining the orifice of the submaxillary duct, a small white concretion, not larger than a pin's head, was discovered obstructing its orifice; this was easily removed, a quantity of saliva escaped into the mouth, and the patient was immediately relieved. A year or two afterward, while he was at tea, the same thing recurred, but on this occasion the calculus was larger, and rather irregular in shape. After endeavoring for some time to remove the calculus, but failing, partly on account of the nervous restlessness of the lad, I fixed it by means of a pair of bull-dog forceps, and then cutting through the duct beyond the calculus, removed it, together with the orifice and enveloping portion of the duct. He has had no return since, but his mother informs me that he sometimes feels a little uneasiness in the situation of the gland, and gets rid of it by pressing underneath the margin of the jaw, which seems to displace something.

Part xxxvii., p. 140.

Enlarged Lymphatic Glands.—If you have an enlargement of cervical glands in a patient of middle or older age, evidently neither inflammatory

nor sympathetic, at once suspect cancer, especially if up under the upper or middle part of the mastoid muscle. The suspicion is increased if the patient has lost weight and strength, and the swelling is hard and not very movable. Take care and do not confound scrofulous sloughing of the inguinal glands with that of a syphilitic origin. In the former there is not that great external swelling or inflammation seen in the latter; and though the former is often excited by an attack of gonorrhœa, yet there will not be any syphilitic sores on the genital organs.

Part xxxvii., p. 173

Scrofulous Disease of Neck.—In cases of gland disease of the neck with extensive ulceration of the adjacent skin, or in cases of what is called "cutaneous struma," the internal use of calomel and opium in minute doses, with cod-liver oil, is almost invariably ordered at the Hospital for skin diseases. This practice is contrary to the generally-received opinions on the use of mercury, yet not only does no injury occur, but exceedingly favorable results as regards the local disease.

Part xxxviii., p. 175.

GLEET.

Treatment of Gleet.—[Mr. Jones relates the two following cases in which he successfully treated this troublesome affection by the injection of the tincture of sesquichloride of iron.]

J. T., aged 24, had gonorrhœa eighteen months ago, and gleet continued since; has been under treatment of a surgeon, who ordered cubeba, copaiba, etc., but as he was careless of consequences, did not apply regularly: he had a discharge of thin white pus when he applied to me. Ordered nitrate of silver and sulphate of zinc injections, alternately to be used, but without effect. I then made use of tincture of iron, grs. xii. three times a day, and gradually increased to grs. xl.; in a fortnight he was perfectly well; and has had no return since.

W. S., aged 21, had gleet twelve months; ordered the tincture of iron, dose, grs. xx. two or three times a day; to be increased to dose, lxxx. After seven or eight days the discharge had nearly ceased; in fifteen days he was cured.

Part vi., p. 149.

Creasote.—In obstinate cases of gleet, occurring in flabby leucodilegmatic males, Dr. Allnatt has great confidence in the efficacy of the following formula:

R Creasote, 20 minims; solution of potash, 2 drachms; white sugar, 2 drachms. Rub together in a mortar; afterward, add by degrees, 8 ounces of water. Make an injection, to be used three times a day.

Part vii., p. 88.

Treatment of Gleet.—In cases of gleet, Mr. Bennett Lucas prefers an injection composed of alum and water, from two to five grains to the ounce, or of acetate of zinc, two or three grains to the ounce. He has relinquished the nitrate of silver in this stage of the disease. The injection of port wine and tannin recommended by Ricord, and also by Mr. Langston Parker, he also thinks very useful. It is composed of 18 grains of tannin, in six ounces of port wine.

Mr. Childs adopts a mode of treatment at the very commencement of

the disease still more energetic than that of Ricord, and most other writers on the subject. He applies the solid nitrate of silver to the part, by wiping it over the mucous membrane, by means of an armed bougie, a modification of Lallemand's caustic-holder. *Part viii., p. 189.*

Treatment of Gleet.—The evils resulting from the use of injections in the treatment of gleet, arise from their being too strong; hence, not only failing to act as astringents on the mucous follicles, they cause irritation, inflammation, and even stricture of the canal; this applies more particularly to the nitrate of silver injections.

Dr. L. D'Etiolles recommends the following ointment, which answers much better than the nitrate of silver: kino, ten parts; sulphate of zinc, one part; lard, twenty parts. *Part xiii., p. 200.*

In cases of gleet of an obstinate character, apply a solution of nitrate of silver, one or two scruples to the ounce, to the prostatic portion of the urethra. *Part xxv., p. 242.*

Chia Turpentine—In Gleet.—As this frequently depends on an increased and altered secretion of the follicles of the prostate gland, it cannot be got rid of by astringent injections, as it is often impossible to reach the true seat of the disease; whereas the exhibition of chia turpentine, in doses of five grains, often puts a stop to the discharge instantly. *Part xxv., p. 214.*

Tannate of Alumina—In Gleet.—Use an injection, before going to bed, of tannate of alumina, five grains to the ounce of distilled water. *Part xxv., p. 339.*

Gleet and Obstinate Gonorrhœa.—If there be no stricture, use nitrate of silver injections, raising the strength from one grain to ten grains to the ℥j. of water. The pipe of the syringe should, at least, be two inches long, because on the lower surface of the urethra there are certain sensitive spots, and so long as these exist, the discharge will not give way. If the injections fail, the urethra should be sounded, and if a stricture is found, the bougie must be used. There is an intermediate state of stricture, one in which it is forming, and in which the urethra feels granular. In this state the remedy is the bougie, perseveringly used. If, however, the injections fail, and no stricture is found, then a blister should be applied.

This is the quickest, safest, and most efficacious remedy which has yet been proposed. After the blister, the patient should be kept quiet for three or four days, and when the blister begins to heal up, a few mild injections should be given. Zinc. sulph. gr. x. ad ℥j.; sp. camp. mxx.; aquæ destil. ℥j. A teaspoonful to be injected three times a day. *Part xxviii., p. 221.*

GLYCERINE.

Nature and Uses of.—[The nature and uses of glycerine, the sweet principle of oils, which may now be had of any first-rate druggists, are thus stated by Mr. Startin:]

When perfectly pure and anhydrous, glycerine is a nearly colorless liquid, of a sweet taste and sirupy consistence; it has a faint, but not dis-

agreeable odor, and possesses a great affinity for water, with which it readily combines; it also easily unites with oils, and dissolves many gums and resinous substances; it will neither crystallize nor ferment like sugar, nor will it evaporate beyond a certain point, but is destroyed by ebullition.

The antiseptic and uncloying properties of glycerine first led me to attempt its use for medical purposes, as I believed, by the means of such properties, lotions, poultices, baths, etc., might be rendered peculiarly emollient and soothing. When preternatural dryness, roughness, or harshness of the skin was present, and particularly in those cases where the hair or scalp was involved, as in instances of dandruff or pityriasis of these parts, my expectations were more than realized by reducing my conjectures to practice; and I found that by the addition of one-fourth to one-eighth, or even one-sixteenth of glycerine to any lotion, poultice, or external application, all the indications I have mentioned were fulfilled, and that such application never became perfectly hard and dry, whilst it soothed and tranquillized the diseased part, by attracting moisture from the air, and thus keeping up a constant evaporation from the surface; its antiseptic properties also, in a great degree, prevented the unpleasant odor of vitiated secretions or discharges, whilst its undrying nature did not permit the formation of hard scabs or incrustations, which it is known very often interfere with the healing process, and occasion much pain on their removal.

Pills made with the addition of a few drops of glycerine never become dry, and sirups and extracts by its means are kept from evaporation to dryness, as also from fermentation, and the formation of cryptogamous vegetation, or moldiness, and many other uses for this agent will not fail to suggest themselves; I shall briefly enumerate some diseases of the skin in which I have employed glycerine with most benefit and success; these are pityriasis, or dandruff (particularly that form of the disease which I have termed *P. congenita*), lepra, psoriasis, lichen (in its dry advanced stage), impetigo inveterata, and prurigo. I have found glycerine also a useful addition to lotions in the incrustated forms of lupus, or herpes exedens, and to various syphilitic or strumous eruptions, which have a tendency to produce fetid discharges and hard crusts, for which reason it has proved of service in the scabbing stage of small-pox. As a wash for the hair and for chapped hands, face, or nipples, combined with a little rose-water and a few grains of borax (the glycerine being in the proportion of one-sixteenth), this remedy furnishes, perhaps, one of the most elegant and efficacious preparations which has been introduced. It may also be combined with soaps, which it renders peculiarly softening and efficient, particularly to individuals who have a dry or hard skin.

Part xvi., p. 224.

Glycerine and Tannin.—Pure glycerine dissolves nearly its own weight of tannin, affording a very powerful local astringent application.

The solution of tannin in pure glycerine appears to me to supply a desideratum long felt, and capable of a great variety of useful applications.

The solvent property of glycerine over tannin allows us to form a lotion of any desirable strength, as the solution is readily miscible with water.

The solution of tannin in glycerine, in one or other of its strengths, is peculiarly applicable to many disorders of the mucous membrane, readily combining with mucous, and forming a non-evaporizable coating over dry membranes; hence it may with benefit be applied to the mucous membranes of the eye and ear in many of its diseased conditions. It forms a most convenient application to the vaginal, uterine, urethral, or rectal membranes, where a strong and non-irritant astringent lotion is desired.

In local hemorrhages, where the bleeding surface can easily be reached, it will prove very convenient, and may be applied either with a sponge or small brush.

The solution must be kept in the dark, and should not be prepared for any great length of time before used, or decomposition will occur.

It is singular that glycerine does not possess the same property toward gallic acid.

Part xxxii., p. 300.

Glycerine.—Glycerine possesses remarkable nutrient and alterative properties. Dr. Lindsay believes it to be the active principle of cod-liver oil. He has carefully observed its effects in eight patients, who were all more or less anæmic, emaciated, and feeble: at the end of a month, they were all greatly improved in their general condition—they seemed plumper and stronger, and in some the countenance was even ruddy, and in most there was a marked increase in weight. It is most palatable when mixed with coffee, which may be sweetened by it instead of sugar. It may be added to tea, and it sweetens milk and cream very pleasantly; but its mixture with water is very palatable, and is the readiest and cheapest mode of administration. Its sweetness would probably render it a favorite with children.

Part xxxv., p. 200.

Endermic Application of Iodide of Glycerine.—In cases in which previously the alcoholic solution of iodine was employed, a solution of iodine in glycerine, in the proportion of one part to five, will be found more advantageous. It does not affect the skin like the alcoholic tincture, and may be applied for a long time to the parts about the neck and female breast without much inconvenience. If excoriations are caused, discontinue the application, and apply cold fomentations. The paintings should be performed once a day, and covered with gutta serena paper. They may be continued for a month without producing *iodism*.

Part xxxv., p. 201.

Solvent Property of Glycerine.—The especial property which glycerine possesses of dissolving the disulphate of quinine would alone be sufficient to render it an object of interest, but it is equally powerful with many other substances. It readily dissolves the disulphate of quinine in the proportion of two grains to the fluid drachm, forming at first an opaque fluid, which, in the course of a few hours becomes a clear bright solution, possessing the peculiar pale-blue superficial tint peculiar to the solutions of that substance, and this without the aid of heat or any acid. This solution is miscible with waters and tinctures in various proportions, and it appears a great advantage to possess a clear, bright, elegant, and by no means disagreeable solution of the disulphate of quinine, without the addition of acid. Gallic acid, which requires one hundred parts of cold water for its solution, is soluble in rather less than twelve parts of glycerine, making a clear, straw-colored liquid, of a pleasant, sweetish, sub-acid taste, in this state offering a desirable mode

of administering the gallic acid where pills might be objectionable, and a large quantity of fluid impracticable.

Tannic acid is also freely soluble in this substance, and as an external astringent application might prove preferable in many instances to an oily or greasy compound. In the treatment of hemorrhoidal affections, it may possibly offer, as an application combined with opium or the salts of morphia, some advantage over the reigning preparation—*unguentum gallicæ compositum*, it being more tenacious, and at the same time lubricating, and when combined with the salts of morphia, in place of opium, it possesses the decided advantage of not staining the linen.

The hydrochlorate and acetate of morphia are readily soluble in glycerine, making a clear, limpid solution of a slightly yellow tinge, forming, as it were, a kind of sirup, which might possibly prove in many ways useful in the hands of the profession.

Glycerine also dissolves the *ferri et quinae citras*, in the proportion of five grains to the drachm, forming an olive-yellow colored liquid peculiar to the solutions of that salt.

Part xxxvi., p. 255.

GONORRHOEA.

Treatment of Gonorrhœa by Frequent and Weak Injections of Sulphate of Zinc.—It consists simply in the very frequent injection of a very weak astringent solution into the urethra, the only necessary condition being, that the operation should be performed at very short intervals, and the solution so weak as to occasion little or no pain. The solution found to answer best, is that of sulphate of zinc, in the proportion of one grain to the ounce of water, to be still further diluted if the patient feels the injection painful. Before each injection a jet of urine should be discharged, in order to clear out any morbid contents that may be accumulated in the canal. The instrument used should be a small syringe, surrounded at the point with a little lint, or other soft material, which serves to protect the tender orifice of the urethra from the contact of the harder substance. The operation can be very easily performed by the patient himself, and scarcely needs description.

Part i., p. 103.

Treatment of Gonorrhœa.—[Finding that copaiba so frequently disagreed with the stomach, M. Velpeau introduces his doses of ʒj. of the balsam, mixed with four ounces of viscid fluid and a little opium, up the rectum in the form of enema. Although the patient can seldom retain this long enough, yet in some cases the effects are precisely the same as when the balsam is taken into the stomach; it soon cures the disease. But M. Velpeau's favorite remedy is a mixture of copaiba and cubeba, as follows:]

Take of balsam of copaiba, two drachms; powdered cubeba, six drachms; powdered opium, two grains. Mix, and add sufficient carbonate of magnesia to form a paste, which is to be divided into six parts, one to be taken three times a day, and generally speaking, three doses will effect a cure. But we should not discontinue the administration of it for a few days after, as, if we do, the discharge is very likely to return, and what is worse, in increased quantity. You must, however, always pay particular attention to the state of the stomach and bowels during its use.

Mr. Carmichael is in favor of injections of nitrate of silver in this complaint, but in very small quantities. He uses only one quarter of a grain to the ounce, and seldom increases it to a grain.

M. Ricord speaks in high terms of a solution of the iodide, or protoioduret of iron, as an injection. He has used from one to eighteen grains of this preparation to an ounce of distilled water, but care is requisite in going beyond his minimum proportion. It is a powerfully astringent substance.

Part i., p. 109.

Extract of Cubebs.—Recommended at the very first issue of discharge in gonorrhœa, and while the discharge is thin. If taken after the inflammation in the urethra has become sufficiently great to induce the formation of puriform fluid—it only serves to aggravate the disease in its second stage.

Dose: About fifteen grains of the extract three times a day. It is highly beneficial often in the third stage, when the discharge is great in quantity, but thin and transparent.

Part i., p. 118.

Ointment of Oxide of Silver.—Has been used with decided benefit in the chronic stage of gonorrhœa, as an auxiliary to the usual medicinal treatment, and with but little inconvenience beyond the mere mechanical irritation of the bougie.

Part ii., p. 38.

Injections.—A favorite injection with M. Ricord, is a solution of the ioduret of iron, 3 grains to 8 ounces of distilled water.

Another consists of a solution of pure tannin in port wine, in the proportions of eighteen grains of the former to six ounces of the latter.

Part ii., p. 85.

Chloride of Zinc in Acute and Chronic Gonorrhœa.—M. Gaudroit concludes that the chloride of zinc, properly diluted, has a remarkable power in curing simple gonorrhœa of the urethra and vagina, also in dilating the urethra, and thereby ameliorating strictures. He believes that it is always by an inflammation *sui generis* that the discharge is cured, and that injections of the chloride of zinc determine a series of phenomena not produced by other caustics. It is only necessary to use a few drops of injection, as the extremity of the urethra is the only part to which it should be applied. To combat vaginal gonorrhœa in women, M. Gaudroit proposes a new proceeding, which consists in the use of solid vaginal suppositories, composed of a paste made to melt easily, and containing a certain quantity of liquid chloride of zinc and sulphate of morphine.

In men the author employs the following formula:

R Liquid chloride of zinc, 24 to 36 drops; distilled water, 4 ounces. Agitate and filter through paper.

A small quantity of this solution should be injected about an inch along the urethra, two or three times a day.

The vaginal suppository which he employs is formed of

R Liquid chloride of zinc, 5 drops; sulphate of morphine, half a grain. Mix with three drachms of the following paste: Mucilage of gum tragacanth, 6 parts; powdered sugar, 3 parts; starch powder, 9 parts.

To cure radically a gonorrhœa in man, it will ordinarily suffice to apply two injections a day for two or three days. The first injections are almost always followed by more or less swelling of the glans penis, but this does not prevent their continuance.

In women four or six suppositories, one being introduced every day, or every second day, suffice to obtain a cure. The first introduction frequently occasions a swelling with more or less heat of the vulva, but these phenomena are soon completely dissipated. Emollient baths have in most of the cases been employed for this purpose. *Part iii., p. 107.*

Treatment of Gonorrhœa with Cubebs and Alum.—A correspondent in the *Journal des Connaissances Médicales* recommends very highly a combination of powdered cubebs and alum in the treatment of gonorrhœa, and adduces several cases in illustration of its efficacy. The formula which he uses is the following: Two ounces of cubebs, and half an ounce of powdered alum are to be mixed well together and divided into nine doses, of which one is to be taken three times in the course of twenty-four hours.

A cure is said to be usually effected in from six to eight days.

Remarks.—It is more than probable that alum has not been used in cases of gonorrhœa so much as it deserves to be. That the salt is rapidly absorbed into the system, and is eliminated, in a great measure, by the urine, appears from numerous experiments. *Part iii., p. 114.*

Use of Injections in Gonorrhœa.—[Under the head of "Abortive Treatment," in Mr. Acton's valuable work on syphilis, he makes the following remarks on injections in gonorrhœa:]

At the commencement of a discharge from the urethra, and previous to any redness around the orifice, or pain felt in making water, the surgeon will frequently be able, at once, to cut short the affection, and cure his patient; under other circumstances, this plan will not avail.

It consists in employing, during the succeeding forty-eight hours, twelve injections of nitrate of silver at regular intervals: the strength of the solution of the salt should be, two grains to the ʒviij. of distilled water. Let the injections be then left off, and cubebs or copaiba be given. If the case be recent, and the disease not too far advanced, this treatment will succeed, fifty times in a hundred cases, in checking the disease; and there is no fear of occasioning stricture, or swelled testicle at this period of the complaint. Under this treatment the running will at once cease; but to complete the cure, it will be necessary to continue the cubebs, diminishing gradually the dose. No further recourse should be had to injections, as a continuance in their use would only tend to keep up irritation; at the end of fifteen days the surgeon may allow his patient to resume his usual habits.

Soon after the injections have been employed, there will appear a reddish-looking discharge; this should not prevent the patient from continuing the twelve injections at intervals of four hours, notwithstanding any slight pain which may occur; a slightly purulent, rosy discharge is a very favorable sign, as it shows that the disease will rapidly yield.

Part iv., p. 25.

Treatment of Gonorrhœa.—Ricord lays it down as a rule that, in all cases where the disease is not complicated with phlegmonous inflammation of the structures surrounding the urethra, the abortive treatment ought to be in the first place attempted. He shows that stricture and most other evil consequences of gonorrhœa are owing rather to the persistency of inflammation than to the means of cure. His treatment is applicable to all periods of the disease when acute inflammation does not attend them.

even a sub-acute degree of inflammation does not contra-indicate the treatment. We need not remind the reader that injections of nitrate of silver form his chief remedy. He uses one injection a day, composed of 10 grains to the ounce of distilled water, which need not be limited in its course to the first inch or two of the urethra, but may be allowed to pass throughout its extent, as the inflammation often extends beyond the bulb, and where no inflammation exists, the injection will do no harm, not even if it enter the bladder (which is not very likely), as it would be decomposed by the urine. This treatment gives rise to another kind of inflammation which would subside by desisting from the injections of nitrate of silver, but may more rapidly be dispelled by injecting three times a day, a solution composed of 8 oz. of rose water, sulphate of zinc, and sub-acetate of lead, of each 17 grains.

Part viii., p. 188.

Chloride of Lime in Diseases attended with Contagious Discharge—Gonorrhœa.—In the first stage, before the discharge has become completely puriform, or the scalding great, a single injection of about two fluid drachms of the strong solution will always put a stop to the disease, either in a first or subsequent clap. In the second stage, when there is a considerable discharge of pus, and more pain, several injections are required. In gleet, provided the discharge be not kept up by some strictural change in the urethra, the strong injection is likewise useful, but not to so striking an extent. The effects of injecting the strong solution are, sharp pain, and often erection for the moment, slight puffiness and eversion of the orifice of the urethra, and tenderness on pressure, and a feeling of unusual firmness for two or three inches down the corpus spongiosum, where these did not already exist. In a short time the pain subsides, and in a quarter or half an hour a serous discharge issues from the mouth of the urethra.

Part xi., p. 186.

Combination of Copaiba with Purgatives in Gonorrhœa.—From an account given by M. Jaquetant of the hospital practice of M. Diday, it would seem that the balsam of copaiba acts much more energetically in the removal of gonorrhœa if combined with purgatives. The formula which M. Diday found most successful was three drachms of the balsam of copaiba, four drachms and a half of the powder of cubeba, and forty-five grains of the powder of jalap, made into an electuary, of which one half is taken in the morning and the remainder in the evening. The treatment rarely lasted more than five days, by which time a permanent cure was in general effected.

Part xi., p. 188.

Caustic Bougie in Gonorrhœa.—Mr. McDonald has tried the following remedy with great success:

The remedy I refer to is that of smearing a bougie with ointment of the nitrate of silver, introducing it into the urethra for about three inches, and letting it remain there a minute or two. I have found from two to three applications complete the cure, and if in the very acute stage of the disease, one application is generally sufficient. This mode of treatment is equally applicable in all stages of gonorrhœa.

I believe injections of the solution of nitrate of silver (3ss. to ʒj.), have been used with great success in gonorrhœa, but I infinitely prefer the ointment introduced on a bougie, as I think it is the better means of getting the nitrate of silver more thoroughly in contact with the lacuna magna, which is generally considered to be the principal seat of the disease.

Part xii., p. 216.

Treatment of Gonorrhœa in the Female.—Let the patient first remove as much of the secretion as possible from the vagina, and then inject in an efficient manner a preparation of copaiba (about a drachm of the solid balsam to a pint of water), and retain it for five minutes; and then insert a piece of lint six inches square, folded into four, saturated with the copal solution. This process is to be repeated four times a day. In those intractable cases in which the neck and cavity of the uterus are involved in the disease, apply an ointment with six or eight grains of nitrate of silver to the ounce of lard, to the internal surface of the uterus, by means of a elastic bougie.

Part xviii., p. 210.

Treatment of Gonorrhœa by Vinum Colchici.—Dr. Ficinus, of Dresden, confirms the opinion formed by Eisenmann, of the value of vinum colchici in gonorrhœa. He gives from twenty-five to thirty drops three times a day, combined with tinct. opii, enjoining at the same time a low diet, warm bath, etc. These means he has found attended with unprecedented success in the treatment of gonorrhœa and other inflammatory discharges from the urethra in males, and from the vagina and uterus in females.

Part xix., p. 186.

Treatment of Urethral Pains following Gonorrhœa.—When severe pains remain in the course of the urethra, after all traces of the discharge have ceased, treat them by applying compression to the penis, as firmly as possible, without interfering with micturition. Apply this compression either by one strip of adhesive, two fifths of an inch broad, rolled uniformly round the penis, like a bandage, beginning at the glans; or by a number of small strips, the two extremities of each strip crossing upon the urethra.

Part xix., p. 187.

Treatment of Gonorrhœa.—Begin by giving purgatives, and nauseating doses of tartarized antimony, and when the inflammatory symptoms are relieved, give the following mixture: R Bals. copaih. ʒss.; pulv. cubebæ ʒss.; liq. potasse, ʒiiss.; mucilag. acacie, ʒss.; aq. destil. ʒviiss.; M. Take table-spoonfuls to be taken twice a day, as at eleven and three o'clock, but not upon an empty stomach. When the inflammation is severe, employ emollient injections into the urethra; also sedative injections, such as a plumbi diacet. mxx. in ʒiiss. of water. In mild cases, and in constitutions that are not irritable, stimulating injections may be used, such as hyd. chlor. gr. j. in ʒviij. of water.

Part xxi., p. 27.

Acetate of Potash in Gonorrhœa.—Give acetate of potash in half drachm doses, every four hours. Even where the disease does not yield by the use of acetate of potash, Mr. Hilton has repeatedly found that, after its administration, a few doses of copaiba completed the cure and prevented relapse.

Part xxii., p. 26.

Intractable Gonorrhœa.—The severe forms of gonorrhœa which are exceedingly obstinate, are owing to the inflammation spreading along the entire canal, extending over the mucous membrane of the bladder and nay, even in some cases to the ureters and kidneys; and pus diffused through the urine is an indication of it. There is no specific remedy for this form, but when pus has once appeared in the urine, the antiphlogistic treatment must be more strictly enforced; and when the inflammation

symptoms have subsided, then, and not until, specific remedies, as balsams and cubebs, may be resorted to.

Part xxii., p. 265.

Injections.—Ricord frequently prescribes the following as an injection to be used two or three times daily; and it is obviously applicable as a lotion to other cases. Take of tannin and sulphate of zinc, each one gramme; rose water, two hundred grammes. If the sulphate of zinc be perfectly pure, the solution will be colorless; but if (as is generally the case) it contain some oxide of iron, it will be of a deep red hue, from the formation of a tannate of the oxide of iron, which, being a good astringent, does not injure the lotion.

* * * * *

Use an injection of the solution of diacetate of lead, 3ij. to six ounces of distilled water. Another is a solution of alum, four grains to the ounce. Another an infusion of green tea, a drachm to half a pint. By ringing the changes on these, perhaps, all the good effects of injections may be obtained.

Part xxiv., p. 260.

Balanitis, or Gonorrhœa Preputialis.—In the uncomplicated disease wash the parts dry, then carefully, and by means of dry lint accurately placed between the glans and prepuce, separate the two surfaces. If the parts are slightly inflamed, whiten the parts by simply passing a stick of caustic over them. The parts should then be washed daily with a lotion of zinc and tannin, one grain of each to the ounce, then dried and lint applied as before. If phimosis be present and be irremediable, the operation of circumcision must be performed.

Part xxiv., p. 260.

Chronic, or Gleet.—Examine the passage by a wax bougie, No. 6 or 8. If an irritable surface is detected, use the strong caustic injection, and give copaiba or cubebs; following up by injections of zinc and tannic acid. If incipient stricture be detected, the nitrate of silver is not advisable; but bougies should be passed every other day, astringent injections being used in the intervals.

Part xxiv., p. 260.

Use of Blisters.—A blister applied to the penis will often cure the most prolonged gleet. Two blisters and mild injections have cured a clap which had resisted the most energetic treatment. If uncomplicated, it should be applied from the root to within half an inch of the mouth of the urethra; in milder cases, one inch and a half. If there are any vesicated spots, they must be covered with pieces of linen spread with zinc ointment. Brown's blistering tissue is preferable to the common blistering plaster. In severe cases, a longer application is necessary. To protect the penis from friction, a T bandage must be applied, with a bag to receive the penis, and thus to keep it up against the abdomen if necessary. In common cases, a soda and jalap powder may be taken twice a day, and a zinc injection used 5j. to Oj.

Part xxiv., p. 272.

Gonorrhœa.—Give a saline purge during the first day, consisting of a seidlitz powder, with half an ounce of sulphate of magnesia; the recumbent position being enjoined, weak linseed tea with a little nitrate or bitartrate of potash, used as a common drink; and pure cold water used as an injection twice every half hour. During the second day the same quiet and rest observed, and drink used; a solution of two grains of sulphate of zinc in one ounce of water is to be used as an injection twice every half hour. On the third day the rest may not be so strictly enforced, but the

injection and drink must be used as before. The disease may be thus almost always cured in three days, but the success mainly depends on the persevering use of the injections.

Part xiv., p. 170.

Tannate of Alumina.—Use an injection of tannate of alumina, five grains to the oz. of distilled water, before going to bed.

Part xiv., p. 171.

Gonorrhœa treated by M. Jozeau's Copahine-mêge.—The peculiarity of M. Jozeau's saccharated capsules was stated to be that they were easy and agreeable to take, that they produced no nausea, sickness, or unpleasant purging, and that, when continued, they cured gonorrhœa in a short time.

The copahine-mêge was prepared by M. J. by surcharging the copaiba with oxygen, by means of nitric acid, the latter being added in proportions which varied according to the kind of copaiba acted upon. The nitric acid yields some of its oxygen to the essential oil, and the nitrogen is given off in the form of hyponitrous acid, by combining with the oxygen of the atmosphere. The copaiba thus treated is then well washed with water, until it no longer reddens litmus paper, and to it are added one-tenth part of cubebs in fine powder, the same proportion of carbonate of soda, and one-sixteenth part of calcined magnesia. The mixture is allowed to stand until it is quite solidified, and in that state it is made into small masses. The latter are then carefully covered with sugar, to which a pleasant pink color (*coccus cacti*) is given, and they then look like very pretty *mag-plums*. For lymphatic patients and delicate females, a second mass was prepared, into which, beside the above-mentioned ingredients, some steel was made to enter. This is then a sort of martial preparation of copaiba. The doses are stated as follows:

When there is neither pain nor inflammation, five saccharated capsules are taken three times per diem. One capsule more is then given with each dose every subsequent day, the doses being thus increased until purging is produced. Where there is pain or inflammation, these should first be treated by the surgeon in the manner he thinks the most advisable, and the copahine is to be commenced when acute symptoms have abated. It has been noticed that the martial capsules have effected a cure when the simple preparation has failed.

Part xxvi., p. 182.

Bougies—Aluminized.—In stricture, combined with chronic inflammation, these bougies are of great value in procuring *dégorgement* of the mucous membrane. This is effected generally in from seven to twelve days, when the dilatation of the stricture is then proceeded with. They are prepared by warming the end of wax bougies, and then incorporating with them some powdered alum, so as to form a kind of *magina* of the wax and alum.

Part xxvi., p. 183.

Use of Tannin.—Inject a solution of tannin, 3ss. to ℥ij. to ʒij. of water. The injection is to be used three or four times a day. Ten cases were thus cured in from six to nine days. No pain followed its use.

Part xxvii., p. 186.

Gonorrhœa.—M. Alquié speaks in the highest terms of the great utility of the tannate of zinc (1 part to 100 of water) injection employed, night and morning, in gonorrhœa, after the acute symptoms have subsided.

Part xxviii., p. 21.

Gonorrhœa—Painful Erections in.—Give lupulin; begin with one scruple and increase the dose if necessary. Zambaco gives this dose and increases it to sixteen scruples, but we should hesitate how we commenced with stronger doses than five or ten grains. *Part xxxi., p. 241.*

Gonorrhœa.—M. Ricord employs large doses of cubeba in powder, or copaiba capsules, together with his favorite injection, consisting of 10 grains of the subnitrate of bismuth to 8 ounces of water. In London, the capsules, with lead injections, rarely fail to cure when given after the inflammatory stage has passed. If the disease should continue in a subacute form, examine the urine, it will most likely contain mucus, and if it do, there will be some irritation of the bladder or prostate; you must then lay aside both the capsules and the injection for a time, and give the extract of the spruce fir as follows: R Ext. abietis nigr. inspiss. 3ij.; magnea. carb. q. s. M. fit. pil. xxx.; cap. j. vel ij., bis vel ter in die. If you find it necessary to give opium by the rectum, it will be most convenient in the form of a suppository, and this will be far better to introduce if made of the butter of the cacao-nut, than if made with Spanish soap. R Pulv. opii gr. j., buty. cacaonis gr. x. M. Ft. supposit.; hac nocte utend.

Part xxxiii., p. 242.

Gonorrhœa—The injection of the balsam of copaiba is much more efficacious than when given in the usual way. The following formula may be adopted: Copaiba, five drachms; one yolk of egg; extract of opium, one grain; water, seven ounces.

The infusion of buchu is quite as efficacious in gonorrhœa as balsam of copaiba, and is not so objectionable on account of its smell or disagreeable taste.

Part xxxiv., p. 223.

Gonorrhœal Epididymitis.—Cold applied to the scrotum by compresses dipped in water is a powerful remedy, assuaging pain, preventing further effusion, and expediting absorption; if it induces an uneasy sensation the temperature must be raised from cold to cool, and continued until the cure is complete. Conjointly with this the patient should take a saline purgative at intervals.

Part xxxiv., p. 223.

New Remedy in Gonorrhœa.—Professor Sigmund, of Vienna, recommends, in place of the expensive and frequently adulterated or too old balsam of copabia and cubeba, rectified turpentine and the seeds of *heracleum sphondylium*, an indigenous and active, though little employed drug.

Part xxxv., p. 186.

Gonorrhœa of the Nose.—Dr. Edwards, of Edinburgh, records the following case:

A respectable widow, aged sixty-one, applied for relief at the New Town Dispensary, under the following circumstances: Her whole face was swollen, especially the eyelids, nose, and upper lip. There was slight conjunctival congestion, and a small abscess pointed close to the left angle of the mouth. Her nose was extremely tender on pressure, the skin over it red, tense, and shining, with a few inflamed papillæ scattered over it. The upper lip was much enlarged, and its cutaneous surface excoriated, evidently from the irritating effect of a purulent fluid which flowed copiously from both nostrils. So tender were the parts that she scarcely ventured to wipe off this discharge, and kept her head hanging forward so as to allow the matter to drip upon the floor. She described herself as

much reduced in strength since the occurrence of the malady, which she accounted for by the fetid odor of the discharge, making her loathe all food. She came into the room supported on the arm of another woman. The patient's extreme emaciation and general appearance led me at first to suspect malignant disease, and, from the treatment prescribed, her former medical advisers seem to have been of that opinion also; but by dint of cross-examination, I ascertained that about six months previous to my seeing her she had been paid a visit by her son; he was at that time suffering from gonorrhœa, and he used a pocket-handkerchief to suspend his testicles. He left this handkerchief lying about his room, and she picked it up, and used it for her nose for two or three days. On the fifth day her left nostril felt hot, dry, and itchy, and soon began to discharge yellow matter; soon after the right nostril became similarly affected, and her eyes slightly inflamed. These symptoms were accompanied by headache, pains in the limbs, and shivering. She imagined at first she was suffering from a severe influenza; but finding the nose getting daily into a more disgusting condition, she consulted medical men, who prescribed various remedies.

This history being ascertained, the indications for treatment were clear. I opened the small abscesses, and ordered glycerine for the sore upper lip, and edges of the nostrils, which were to be syringed frequently with warm water; citrate of iron and quinine, in pills of two grains, three times a day. Under this simple treatment the symptoms at once yielded, and a little myrrh lotion injected into the nostrils when the inflammation was abated stopped the discharge.

Part xxxv., p. 157.

Gonorrhœa.—According to Mr. Skey, there is no such thing as gonorrhœal rheumatism, though there may be rheumatic gonorrhœa. He says:

One thing has struck me very much in gonorrhœa—it is seldom found after twenty-five years of age; and as we go on to forty, in the minds of out-patients seen in the wards and out-patients' department every year, we find the gonorrhœal tendency becomes more what I call "eccentric;" it diverges more from the centre of the genito-urinary surfaces. As we approach the age of forty in patients, gonorrhœa becomes longer or shorter in duration, more inclined to attack other parts, whether it be the testis, the cutaneous surface, the iris, conjunctiva, etc. I believe gonorrhœa, in fact, is a congestive or dropsical state of the urethra, a constitutional affection, a "tertium quid" of something in the system of the man more than arising from infection from the woman; but in a great many instances gonorrhœa is merely the result of mistaken treatment. You will ask me the question, however—Is gonorrhœa dependent always on inoculation of gonorrhœal matter? or, perhaps, in other words—Can patients acquire gonorrhœa without inoculation, as taught in books? I believe they can most clearly. I don't believe at all in inoculation of gonorrhœal matter; the question is one of great practical, every-day seriousness, as on it may often depend the peace of a family. I say the large majority of gonorrhœal patients in private practice—where one can more easily trace out the history of the attack—the large majority occur in men who have had intercourse with women without any disease whatever of a gonorrhœal character. I am quite satisfied of this in my own mind; perfectly satisfied. I prefer, however, for your instruction, to direct your attention to the books of half a dozen military surgeons. Any kind of irritation, etc.

the employment of bougies, will cause a discharge from the urethra, and every experienced surgeon knows when children are violated, a discharge generally follows from the mere injury to the parts.

Evans, Rose, and Guthrie, during the Peninsular war, in a situation peculiarly adapted for observation, came to a knowledge of this fact—that the catamenial discharge in the one sex will produce gonorrhœa in the other. Mr. Evans was sure also that the ordinary secretions of the female will produce even venereal disease.

Part xxxvi., p. 191.

Gleet and Gonorrhœa.—Mr. Skey recommends an injection of half a grain of sulphate of zinc to an ounce of rose-water, about five times a day. Keep up his system with tonics, allowing his usual diet, unless egregiously faulty, and banish purgatives, antimony, etc. Administer internally the tincture ferri or ferrocitrate of quinine, and the balsam copaiba in small doses only.

Part xxxvi., p. 195.

Gonorrhœa and Leucorrhœa.—In weak and lymphatic subjects injections of the perchloride of iron have been tried with success, the proportion of the perchloride being twenty drops to three ounces and a half of water.

Part xxxix., p. 344.

Injections—Of glycerine, mur. morphia, and borax. — *Vide Art. "Glycerine."*

GOUT.

Acetate of Morphia in Arthritis and Nervous Affections.—The following is Dr. Cristin's method of administering the acetate of morphia in these affections. Dissolve one grain of acetate of morphia in four ounces of distilled water, and add one ounce of sirup of gum arabic. A spoonful of the mixture to be taken every hour. When the pains are relieved, or sleep is about to commence, it should be given every two hours only, or suspended altogether; depending upon the narcotic effects produced. During its administration the patient should avoid fluids.

A woman aged sixty, was afflicted with arthritis in the extremities; there were acute pain upon motion, hard pulse, burning heat of skin, etc. The acetate of morphia relieved the pain, procured sleep, removed the fever, caused profuse perspiration and diarrhœa, with abundant secretion of urine. Opium excites perspiration, but diminishes the other secretions. Acetate of morphia is therefore the preferable agent.

Nervous pains, such as frontal neuralgia, sciatica, cephalalgia, and syphilitic pains, have all yielded to this remedy.

[Dr. Cristin gives only the tenth of a grain of the acetate every hour, but we generally have found it necessary to give much larger doses without any other bad effect than severe sickness, which, however, is easily abated by creasote, or stimulants, as the spt. ammon. com., etc. We give one-fourth or one-sixth of a grain every hour or two, in severe cases, till the system is completely under its influence, and then keep up its effects by smaller doses, and less frequently repeated.]

Part i., p. 28.

Treatment of Gouty Concretions with Benzoic Acid.—Mr. Ure's intention, in the few remarks contained in this paper, is to introduce to the profession a remedy which he believes to be likely to prevent the forma-

tion of tophous concretions in gouty subjects. The remedy is benzoic acid, administered in doses of a scruple, an hour after a meal. In the course of a couple of hours (as the author has found by frequent experiments, made upon himself and others) the urine voided, amounting to five or six ounces, will be found on adding a small quantity of muriatic acid, to yield a copious precipitate of beautiful rose pink acicular crystals, which weigh, after being allowed to settle for a day, fifteen grains." The body thus produced by the agency of vital chemistry is hippuric acid, and is found to have taken the place of uric acid in the urine, none of the latter being discoverable.

By thus substituting hippurate of soda, a salt of easy solubility, for the very sparingly soluble urate of that alkali, the author conceives that the formation of the tophous concretions may be altogether prevented.

Part iii., p. 56.

Dietetic and Medical Treatment of Gout and Rheumatism.—Three objects demand especial attention in the treatment of the gouty diathesis. First, to invigorate the digestive organs, and prevent the undue formation of free acid (lactic acid), in the stomach. Secondly, to promote the elimination of the gouty matter, through the various excretions. Thirdly, to obviate the tendency to the formation of lithic acid.

It ought to be remembered that food is not the only source of lithic acid; this may arise from a disintegration of the tissues. Liebig considers that the lithic acid is generally derived from this source, while Prout and Wilson Philip think that it arises chiefly from the chyle. There seems to be little doubt that it may and does arise from both these sources—that it can be derived both from the albuminous tissues and from an excess of the matter of the chyle, taken in the blood beyond what is required for the nutrition of the tissues. "The truth appears to be," as Dr. B. Todd says, "that the development of this substance may take place from the imperfect assimilation of the food, quite irrespective of the ulterior changes in the system, or it may occur from certain changes in the system, whatever may be the nature of the food." The first of these opinions is proved by the great quantity of lithic acid which will sometimes be deposited after an improper or indigestible meal, and the second, by the same deposit occurring during the course of some deep-seated disease, as of the liver, quite independent of, and notwithstanding every care respecting the kind of food taken. With respect to food it is evident that such as will most discourage the formation of lactic acid in the stomach and duodenum will be the best, such as regulated quantities of animal food with a small quantity of vegetables, and especially the avoidance of those saccharine and other vegetable products which may be prone to the acetous fermentation. It is proved that bread and the ordinary vegetables contain the same azotized nutrient principles as animal food, but we must take a much larger quantity to obtain the same amount of nutrient material. In the treatment of the gouty diathesis, these principles are of the first consideration. In an attack of this disease we ought to remember that it is one means of eliminating gouty matter from the system, and therefore its management requires great caution. It is too common to begin immediately with colicium. This ought, however, not to be administered at the onset of the disease, till the bowels have been properly cleaned out, nor ought it to be given in the

asthenic form of disease, and when it is given it ought to be commenced in small doses, gradually increased, except indeed some cases of rheumatic gout, in which much larger and earlier doses have been attended with great benefit; when the joints continue in a state of chronic inflammation, Dr. Todd recommends a succession of small blisters or the iodine paint, composed of one drachm of iodine, half a drachm of iodide of potassium, dissolved in an ounce of spirits of wine. This may be painted over the parts occasionally, and will be found very useful where any effusion has taken place into the synovial membrane or sheaths. In the treatment of rheumatic fever we must bear in mind that the three channels which are the most favorable to the elimination of rheumatic matter, are the bowels, the skin and kidneys. It is probably owing to the effect on the kidneys that the value of nitrate of potash is owing, as well as to its remarkable sedative power.

In the French hospitals this medicine seems to be given in excessive doses, eight or twelve drachms daily, and would, no doubt, produce great irritation, were it not dissolved in a large quantity of liquid. Its sedative powers might probably be increased by combining with it tartarized antimony in minute doses. Dr. Todd recommends five or six grains of nitrate of potash with one-eighth of a grain of tartarized antimony with a little laudanum if necessary, every four or six hours. He, moreover, in common with most practitioners, places great confidence in opium, which ought to be given at least every night, and in the day if necessary, unless some other symptom contra-indicate its exhibition. *Part ix., p. 42.*

Iodide of Potassium.—Dr. Oke says: When a paroxysm of gout has either subsided or been subdued by colchicum, it not unfrequently happens that it loiters in the system, sometimes plaguing one joint and sometimes another, not in sufficient force to fever the system, but just enough to confine the gentleman to his arm-chair, or to keep the man of business from his counting-house. Under such circumstances I have found the iodide of the greatest service in clearing the system of the disease for a considerable time. I gave it in the following combination:

Iodide of potassium, 5 grains; sesquicarbonate of soda, 10 grains; camphor julep, 1½ fluid ounce. This dose to be taken thrice daily for a month or six weeks. *Part ix., p. 62.*

Benzoin Water—Is prepared as follows: Purified benzoate of potash, biborate of soda, of each 15 grains, bicarbonate of potash, half a drachm, distilled water, 16 fluid ounces—which solution was prepared under a pressure of 2½ atmospheres of carbonic acid gas. The water will be found to retain a large proportion of its gas long after exposure to the air.

This "*benzoin water*" will be found to unite the properties of an antacid, of a diuretic, and of a tonic. It will be found useful in an irritable state of the mucous membranes, whether manifesting itself in dyspepsia, or in chronic bronchitis; in all cases where there is a disposition to the formation of earthy deposits, in whatever part of the human frame—and particularly where such formations are the result of an excessive generation of lithic acid in the system. *Part ix., p. 93.*

Terchloride of Gold as an Outward Application in Rheumatic Gouty Affections, made into a Salve with Lard.—It is said to relieve the pain, often in a truly wonderful manner. The purple stains are speedily re-

moved by washing the part with a little urine; a fact that was discovered by accident.

Part xi., p. 53.

Remarks on Gout.—When an individual lives too well, and takes too little exercise, there frequently takes place a morbid plethora in the system. "The blood is loaded with nitrogenized principles and calcareous salts, and if the skin and kidneys fail in removing these from the system, they are sooner or later deposited upon the synovial membranes and the tendons, or within the arterial walls, in the former as urate of soda, in the latter as phosphate of lime." Now it appears that gouty people have frequently, if not always, an abundance of uric acid in their urine, except previous to an attack of the disease, when the kidney no longer excretes it; and it therefore is supposed to be circulating in the blood in the form of urate of soda. This is shown by Mr. Ure to be the case by various experiments. He further states the remarkable relief which is afforded by a copious secretion of bile, and for this purpose recommends the *sulphate of manganese*. A drachm of this is to be dissolved in about half a pint of water, and swallowed before breakfast. In a short time it is found to act beautifully on the liver, and to produce copious bilious stools, without causing the unpleasant effects which sometimes follow the use of mercury. It is probable that colchicum is often given too frequently and for too long a time, to patients who are subject to repeated attacks of gout. Dr. B. Brodie thinks that its continued use suppresses the biliary secretion, and must therefore be given for shorter periods and more sparingly than is too often the case. Mr. Ure recommends as topical applications in these cases acetic ether and rectified coal naphtha. About half an ounce of acetic ether may be gently rubbed over the part affected every twelve hours, care being taken that the patient is kept warm afterward, or the coal naphtha may be pencilled over the part with a camel's-hair brush.

Part x., p. 93.

Rheumatic Gout—Use of Phosphate of Ammonia, recommended by Dr. Buckler.—Mix phosphate of ammonia, say $\mathfrak{zss.}$, in $\mathfrak{zvj.}$ of distilled water; and give half an ounce of this either combined with small doses of musk or not. It decomposes the insoluble lithate of soda supposed to exist in the blood, and forms two new soluble compounds, phosphate of soda and lithate of ammonia. Give it for a considerable time where thickening of the white tissues exists; it deprives the blood of the lithic acid and soda, and creates a demand for them, which leads to absorption of these elements from the tissues where they have been deposited. This remedy is not intended to supersede the use of the lancet, and other remedies in acute rheumatism.

Part xiii., p. 154.

Gout.—In gouty inflammation apply leeches, and keep up a gentle oozing from the bites by warm fomentations; then keep the part covered and apply a lotion made of one part of spirit, three of camphor mixture, and a little vinegar. Give colchicum to stimulate and increase the secretion of the mucous membrane of the bowels and to eliminate lithic acid and other nitrogenized elements from the system.

Part xiii., p. 160.

Nitrate of Strychnia Externally in Gout.—M. Wendt recommends the nitrate of strychnia, in the form of ointment, in irregular gouty affections; for example, in gouty affections of the vertebral column, which, through the filaments of the great sympathetic, attack the chest, and give rise to

symptoms imitating angina pectoris. The formula recommended is as follows: nitrate of strychnia, 10 parts; axunge, 8 parts: to be made into a perfectly homogeneous ointment, and applied by friction on the sides of the spine two or three times a day.

Part xv., p. 43.

Pyro-Acetic Spirit in Gout and Rheumatism.—Dr. Hastings recommends naphtha. He says: For upward of twelve months I have employed pyro-acetic spirit in these affections, and my treatment has been attended with a success quite extraordinary, far exceeding the results usually obtained by colchicum, etc. I have not yet seen a case of gout or acute rheumatism which has not rapidly disappeared under its use, at the same time that it brings about a very improved condition of the general health. Chronic rheumatism requires a more lengthened treatment for its removal; indeed it has less power over this affection than the two preceding.

Part xv., p. 43.

Use of Benzoate of Ammonia, or Potash, in Gout.—Dr. Seymour says he has used this medicine repeatedly in practice, in cases in which the small joints were red, swelled, and painful, or where fluid matter was deposited in the joint of the great toe soon after the paroxysm commenced, and also in cases where the lithate of soda existed in the joints of the fingers and superficially immediately under the cuticle on the surface of the lower extremities; and his impression certainly is, that it is decidedly useful. It is a decided diuretic, acting in some cases of dropsy fully and freely, and is especially adapted to those cases where constant nausea and occasional vomiting render the use of many medicines in the class of diuretics impracticable, and also, where diarrhoea exists, forbid the employment of saline diuretics.

He has repeatedly seen, by experiment at the hospital, that in dropsy with albuminous urine, the albumen is greatly diminished under the use of the benzoate of ammonia. What is a recommendation also to its use in many of the cases mentioned above is, that it is not disagreeable to the taste.

Part xvi., p. 68.

Phosphate of Ammonia.—After cleansing out the bowels with proper aperients, give ten grains of phosphate of ammonia every eight hours, either in simple water, or in infusion of serpentaria with spirit of nitro. Order perfect rest and simple diet; cover the parts with fleecy hosiery and oiled silk; and give an aperient pil. hydrarg. with pil. rhei comp. every other night.

Part xvii., p. 26.

Nature and Treatment of Gout.—According to Dr. White, an attack of gout is invariably dependent upon impaired function of the liver, and is certain to be relieved by a copious evacuation of bile. The best way to secure this end, is to give one of the following pills every four hours: R Hydr. chlorid., ext. colch. acct., ext. aloes purif., aa. gr. j.; pulv. ipecac. gr. ij. M. fit pil. After two or three of these pills have been taken, assist their action by giving a dose or two of the compound decoction of aloes. By this time the paroxysm will have been relieved; and the pills may then be given at longer intervals for a little time longer.

Part xviii., p. 44.

Treatment of Gout—Metastatic.—Metastatic gout must be treated by the application of sinapisms, blisters, hot pediluvia, and stimulant frictions, to recall the disease to the extremities. While the feet are plunged into

hot water with mustard in it, if the stomach is attacked, we must give cold or iced drinks with opium; if the head is the seat of metastasis, we must apply cold lotions to it; while if the heart is affected, we should apply no means but the counter-irritation, and above all take care not give hydrocyanic acid.

Part xviii., p. 47.

Treatment of Gout.—Small bleedings to the extent of from three to six ounces, are useful. When purgatives are used, they should be warm, cordial ones, which may be advantageously given in the form of tincture and associated with aromatics and bitters. Colchicum should not be given to the extent of producing vomiting or purging, as it will act quite well without any such manifestation. To change the uric acid condition of the urine, give alkaline phosphates, tartrates, or citrates, rather than carbonates, or pure alkalies.

Give lemon-juice, in doses of from half an ounce to an ounce three times a day.

The best aperient in cases of gout, consists of ten grains of *potash sulphur*, and ten grains of sulphate of potash, with occasionally five grains of rhubarb.

Part xi., p. 31.

Diagnosis and Treatment.—The distinguishing points between rheumatism and gout, are, in the latter, the age of the patient; his diathesis; his habitual use of malt liquor; the rapid or sudden way in which the attacks come on; and the fact, that the parts first affected were the small joints, especially the metatarso-phalangeal joint of the great toe and the tarsal joints. In rheumatism, there is always a great tendency to swell, and the ankles and knees are generally first attacked. As to the heart affections in rheumatism, there is a proneness to fibrinous concretions of the pericardium or endocardium. In gout, the nutrition of the muscular structure suffers, and inorganic deposits (lithate of soda, phosphate, and carbonate of lime) take place in the chordæ tendineæ, and other parts of the fibrous tissue of the heart, ultimately impairing the efficiency of the valvular apparatus. An active antiphlogistic treatment creates æsthenia, and this gives a shifting character to both diseases, perilous to both, but especially so to gout. By moderate purgation, the use of diaphoretics, by keeping the joints warm, and if the urine be very acid, by the administration of alkalies, we may to some extent expedite convalescence, and undoubtedly relieve pain. Counter-irritation, by means of a small blister is of decided utility in many cases, both in relieving pain and removing the effusions or thickenings which remain in gouty joints. Colchicum holds a curious relation to gout, sometimes for good, sometimes for evil; in the majority of cases perhaps the latter. In æsthenic cases, in young subjects, it relieves pain, but though it shortens the duration of the attack it likewise shortens the interval between the attacks; and, as the system is very tolerant of the remedy, there is great danger of immense doses being ultimately required to produce a decided effect.

The chief remedies in some cases, under Dr. Todd, were the use of opium, free counter-irritation over the epigastric region by mustard and turpentine, and the exhibition of the sesquicarbonate of ammonia, allowing three or four grains in excess. The opium may be given in the form of morphia, at bed-time, in a draught. It has been tried with the combination of the acetic extract of colchicum, but this seems to depress. When the erysipelatous state is at its height, fifteen minims of the chloric

ether may be added to the dose of the sesquicarbonate of ammonia as a grateful stimulant. Lemon-juice is a valuable remedy, increasing the quantity of urine often in a very marked way. *Part xxiv., p. 333.*

Gout—Acute.—Apply pure spirits of wine to the part by means of a piece of lint, and cover it with oil-silk.

Chronic Gout and Rheumatism.—Mix 3j. of carbonate of soda with a bread poultice and apply this hot every night. *Part xxix., p. 45.*

Treatment of Gout.—A man, aged fifty-eight, was admitted under the care of Dr. Hughes, into Guy's Hospital, suffering from chronic rheumatic gout, which affected all the joints of his hands. The attack had lasted for six weeks, and was increasing in severity. He had frequently before suffered from the same disease. Dr. Hughes prescribed the following:

R Extract. acet. colch. gr. j.; pulv. Doveri, gr. ij. Ft. pil. ter die sumend. Pulv. Doveri, gr. v., omni nocte sumend., et pulv. rhei cum magnesiâ ʒij. omni mane.

In a few days the pain had quite disappeared, and the man could sleep well, which he had not done for many weeks. Subsequently the decoction of bark was ordered as a tonic, and in about ten days he was well in every respect.

Dr. Hughes remarked that the treatment adopted was one which he almost never found fail to afford a very speedy relief in all forms of gout. He believed the acetic extract of colchicum to be quite a specific for the disease, and was inclined to attribute the failures which some met with to impurities or adulterations of the drug. *Part xxx., p. 29.*

Use of Iodide of Potassium.—Iodide of potassium dissolves lithate of soda very readily, but not lithic acid. Therefore give this medicine in cases of gout, except during the acute attack. Give five to eight grains two or three times a day for a short time; or one grain every day in one or two doses for some weeks or even months. *Part xxx., p. 30.*

Gout and Rheumatism.—Attend to *all* the excretions, and not to those of one organ exclusively. Unless fever be present, give bark and hydrochlorate of ammonia, which stimulate all the excretory glands. Try to improve the general health by change of air and exercise, steel, cod-liver oil, and a variety of other means, before giving colchicum, guaiacum, and other medicines of this kind.

Be careful, especially in puerperal cases, to remember that a joint may be affected by a *gonorrhœal taint*, and may closely resemble pure gout or rheumatism. Ask if the child has had mild or severe purulent ophthalmia; if this has been the case, it is very probable that the joint affection of the mother is gonorrhœal. *Part xxxi., p. 42.*

Gout Treated with Piper Methysticum.—[Dr. Pritchard's patient had tried the usual remedies for a severe attack of gout, but found no relief.]

Seeing it was a well-marked case of podagra regularia, and that my patient, though corpulent, showed signs of much debility from previous treatment, and moreover was exceedingly irritable, I ordered the limbs to be enveloped in piline, saturated with the tincture of piper methysticum, enjoined perfect tranquillity and freedom from business matters, and to take the tincture of piper methysticum every four hours in the following form:

R Tinct. pip. meth. ʒss.; aquæ puræ ʒvj. Capiat quart. part. quique horâ.

To drink lemonade, and to have for his dinner manna croup puddings; for his tea cocon-nibs, boiled in milk, one-half pint.

Constipation troubled him a good deal. I ordered the following pill: R Pil. rhei comp. gr. iv., cap. j., nocteque mane, and that he was not to mind his bowels acting at present, for the action of the piper is more marked when retained in the system. This was merely to calm him; for, as a principle, I do not give aperients in gout.

He expressed himself another man, and from this time he went on improving, and continued under treatment about a fortnight; recovery was complete.

Part xxxi., p. 45.

GRAVEL.

Treatment of Gravel.—The general treatment of gravel has been briefly pointed out by Dr. Watson, in his lectures.

The subject of gravel, simple as it seems to be, is not sufficiently studied by the generality of practitioners, who frequently rest satisfied with observing a red deposit, and endeavoring to counteract it by giving alkaline medicines, without particularly discriminating between the different deposits which are liable to occur in the urine. It is, perhaps, generally known that healthy urine exhibits acid properties, turning litmus paper red; not that it contains a free acid, but that certain of the alkaline and earthy bases are not exactly neutralized, but exist in the state of supersalts. The pure lithic acid is nearly insoluble, but the lithate of ammonia is very readily soluble, and it is this which reddens the vegetable blues; and whether out of the body or within it, the lithate of ammonia will of course be decomposed if any acid be present in the urine, for which ammonia has a stronger affinity than it has for lithic acid, and the lithic acid will be thrown down in the form of red sand, very much like particles of cayenne pepper. If, therefore, we find the urine thick and muddy, with a reddish sediment, we may suspect that it is owing to the lithate of ammonia; the pure lithic acid at other times showing itself in form of the fine sand above mentioned, or in larger crystals. The urine in these cases, is more acid than usual, and gives to litmus paper a deep shade of red; it is generally accompanied, too, by a tendency to feverish and inflammatory complaints. Alkaline remedies are in these cases called for—the bicarbonates of soda and potash. Now, it is important to know that the potash is a preferable remedy to the soda; inasmuch, as soda will sometimes combine with the lithic acid and form an insoluble salt, whereas, with potash, there is not this danger, the resulting salt being perfectly soluble, and passing away dissolved in the urine. Another kind of gravel or sand which is found in urine, is rather *white*; and denotes an alkaline or neutral state of the excretion, and is chiefly owing to the triple phosphate of ammonia and magnesia. It is of the greatest importance, from a practical point of view, to know that this *white gravel* generally accompanies a debilitated condition of the system. It is found in persons who have been weakened by toil and mental anxiety, or by insufficient nourishment; in persons who are cachectic, sallow, languid and spiritless. "A

the urine cools, the white sand is thrown down, and in many cases a sort of film is formed on the surface of the water. If we skim the pellicle off, by placing a bit of paper under it, and then suffer the paper to dry, we may easily see the little crystals." The urine soon grows putrid, and even ammoniacal, in smell. Although the urine, even these cases, is often *very slightly* acid, yet it is sometimes so alkaline as to turn turmeric paper brown; and we must be careful how we depress the vital powers. We must abstain from giving alkaline or saline draughts, colchicum and mercury, from active purgatives and bleeding; and we must counteract the phosphatic diathesis by generous diet, tonic medicines, bark and wine; the muriatic and nitric acids are given with vast advantage, and opium has a wonderful effect in assisting these medicines to restore the acid properties of the urine. We should be particularly aware of the effect of these remedies, as it is generally admitted that it is a much easier thing to render acid urine alkaline than to render alkaline urine acid. The *oxalic* diathesis is another common form of this affection, in which there is a tendency to the formation of the oxalate of lime, or *mulberry* calculus. In the treatment of all these kinds of gravel we should never forget the necessity of well regulated exercise, which has at all times a wonderful effect on the kidneys, especially when the lithic acid diathesis prevails; diet, also, is equally important.

Part vi., p. 21.

Treatment of Gravel, Calculus and Gout.—In the treatment and prevention of gravel, calculus, and gout, we find many excellent directions from the pen of Mr. Jones, chiefly founded on the views of Liebig. These affections are so frequently the result of an excess of uric acid in the system, that to remedy this diathesis is often sufficient to prevent the former. One important indication of treatment throughout these cases, is to promote the action of oxygen on the system, by which the excessive formation of uric acid is counteracted; the oxygen changing it into urea and carbonic acid. This may be accomplished in various ways, and first, by *exercise*, which, if taken in moderation, assists materially in the absorption of oxygen into the system, but if carried to excess may depress the vital powers, and thereby encourage the formation of an excess of uric acid, the very substance which we wish to diminish. Other means will materially assist in the formation of oxygen: the avoidance of too much sleep, and hot rooms—the exhibition of the different preparations of iron, by which the amount of red particles is increased. Another very important means of accomplishing the same object is *food*. This may even rank above exercise in many respects. The great principle to be had in view is to *diminish the non-nitrogenous principles of the blood*. Liebig has shown "that the substances which contain no nitrogen, by combining with the oxygen which has been inspired, hinder its action on uric acid;" and hence the diet in these cases ought to be such as will not to any considerable extent interfere with the action of oxygen, as nitrogenous articles of diet—a moderate quantity of meat, with a much smaller quantity of bread, the meat of course to be proportioned to the degree of exercise—in short, all articles which contain much sugar or starch, are to be avoided in these cases, or given in moderation; as bread, potatoes, rice, apples, pears, and all kinds of fruit, fat, butter, etc. The non-nitrogenous bodies in the blood may also be diminished by certain medicines, which act on the liver, as calomel, aloes, colchicum, colocynth, etc.; and the uric acid may be

kept in the ultimate textures in a state of solution by the alkalies. Mr. Jones considers that whenever the uric acid diathesis exists for any length of time, it must necessarily produce a disposition to *gout*: and however unintentional it may have been, we can see that most of the measures which have been recommended for the cure of gout by different physicians, have been such as would promote the action of oxygen in the system. Sleep lessens the quantity of oxygen taken into the system by diminishing the number and extent of the respirations, and sedentary habits act in the same way; excessive eating loads the blood with those substances which must have oxygen to carry them off; by taking acid the uric acid is rendered less soluble; wines are injurious, from the alcohol they contain, and acid wines are doubly injurious, by both acid and alcohol adding to the excess of non-nitrogenous substances, for which the oxygen has a greater affinity than it has for the nitrogenous substances. We find that abstinence assists materially in restoring the proper proportions of oxygen and nitrogen, by adding no fresh fuel, and thus giving the oxygen and opportunity of consuming those non-nitrogenous (carbonaceous) substances, which had been previously so heaped up as to threaten to put an end to all action. Exertion increases the respiration, and thus causes more oxygen to be absorbed, and more action to take place. Purgatives remove the bile, which contains an excess of carbonaceous matter, of which the oxygen would otherwise act to the hindrance of its action on the nitrogenous substances, whilst alkalies and water hold the uric acid dissolved, and promote the changes in the tissues. By these views, the relation of gout to acidity, to uric acid, and oxalate of lime calculi, is plain. They all arise from the same cause, the want of action of oxygen.

Part vii., p. 60.

Treatment of Uric Acid Gravel by Phosphate of Soda.—In the treatment of uric acid gravel, Dr. Golding Bird suggests that the phosphate of soda, in doses of ℞j. to ʒss., given three times a day, may be even preferable to the pure alkalies and their carbonates, as these so frequently disorder the digestive organs when given and continued for any length of time.

Part x., p. 51.

GUARANA.

Properties and Uses of Guarana.—This substance was presented to Mr. Ritchie by a Brazilian, and from a statement of its virtues he was induced to employ it in several troublesome and obstinate diseases.

It is held to be stomachic, antifebrile, and aphrodisiac; is used in dysentery, diarrhœa, retention of urine, and various other affections. It stimulates, and at the same time soothes, the gastric system of nerves. It reduces the excited sensibility of the celiac plexus, thereby diminishing febrile action, and strengthening the stomach and intestines, particularly restraining excessive mucous discharges, increasing the action of the heart and arteries, and promoting diaphoresis. It is therefore indicated as a valuable remedy in fevers, or reduced vital power resulting from cold or prolonged wetness, grief, too great muscular exertion, depression of spirit, long watching, and also in colic, flatulence, anorexia, nervous hemorrhoids, or in a dry condition of the skin. It is contra-indicated in a plethoric

loaded condition of the abdominal viscera, and when there exists determination of blood to the head. It is said to increase the venereal appetite, but to diminish the fecundating power.

In cases where irritation of the urethra or urinary bladder succeed venereal or attend organic disease, it exerts a most salutary effect in soothing the irritability of the mucous membrane, relieving the nervous prostration which accompanies these affections, and exalting vital power. Unlike the disagreeable remedies which are generally, and often without success, employed in these affections, it is taken with pleasure, and with an amount of success which, as far as my experience extends, is universal.

If we examine guarana according to its chemical characters, it must be regarded as a most valuable substance, from its possessing in so great a proportion that important nitrogenous principle guaranine. This, if not identical with caffeine, is at least analogous to it, and to theine and theobromine—all important elements of food and grateful stimulants. From its chemical constitution, then, we may predict with great certainty its physiological action as being powerfully tonic; but, in the combination in which it is found, experience indicates that it possesses conjoined more valuable properties than belong to the simple tonics. Its power of correcting generally the discharges, and restoring the normal vitality of the mucous membranes, must be viewed as one of these.

Guarana, in the state of powder, is exhibited in doses of ʒj. three or four times daily, mixed with water and sugar, or with sirup and mucilage, conjoined with an aromatic, as cinnamon, vanilla, or chocolate. A convenient form is that of extract, obtained by treating the guarana with alcohol, and evaporating to the consistence of pills. This may be exhibited in the form of solution or pills. The Brazilians, however, use the powder with sugar and water alone, and consider this draught grateful and refreshing.

Part xxv., p. 325.

G U M S .

Epidemic Ulceration of the Gums in Children.—Dr. Duncan gives an account of a very severe and fatal ulceration of the mouth and gums of infants, with high fever and apparently of an epidemic origin, which occurred in the North Dublin Union Workhouse, where there are as many as sixty or eighty children under two years of age.

It first occurred in the winter of 1843-44; was usually preceded by diarrhœa, without, at first, any signs of enteritis. After a few days, the state of the mouth attracted notice; on examination, the gums were found ulcerated, the fangs of the teeth exposed and covered with sordes. If the disease were not checked at this stage, it advanced rapidly to a fatal termination. The ulceration of the gums was very similar to that produced by mercury: which, as in these cases it was of an undoubted constitutional origin, should induce great circumspection in pronouncing such to be the cause, when a case may be met with in private practice.

The spongy state of the gums, with their tendency to bleed, point out an analogy with purpura hemorrhagica, another disease of impaired blood, which is borne out by the discharge in each case of blood in the stools. The great importance of establishing a diagnosis between this disease and

common mercurial ulceration of the mouth is self-evident. The opinion of Dr. Duncan is that it is only a form of *canerum oris*, and that of neither mercury to be considered the exciting cause. If this can be proved, then shall we be able to banish our apprehensions, and avail ourselves of the valuable therapeutic properties of this mineral in its treatment. The importance of establishing this point is further illustrated by the frequency of prosecutions for malpraxis, when the real cause of death was *canerum oris*. The differences between *canerum oris* and mercurial sore mouth, are first, in the salivation, which in the former, though decided, is slight; there is likewise a perceptible difference in the fetor of the breath, but the most distinguishing characteristic is the ulceration of the gums, which in the disease in question is usually confined to *one side* of the mouth, whilst in the mercurial affection, the whole is equally affected. Dr. Marshall Hall also particularly notices this, having found it in a case which he examined. Other arguments in support of the opinion that it is independent on mercurial action, are, that it occurs almost exclusively amongst children, who are scarcely susceptible of that action. Again, it is well known that the action of mercury cannot be produced during the existence of fever, yet this is an invariable accompaniment of the disease under consideration. But the most conclusive of all is, that mercury may be beneficially employed in its treatment. Now *canerum oris* is admitted to resemble very closely the *gangrena pudendi* of young females, and during the epidemic which Dr. Duncan considers, one case of the latter actually occurred, thus satisfactorily proving their common origin. Mr. Kinder Wood first pointed out the unhealthy condition of the digestive organs in the cases of *gangrena pudendi* which had come under his notice, that will be found to occur in *canerum oris*. The pathology of the disease appears to be essentially an inflammation of the intestinal mucous membrane, the mouth affection being merely a part of a more general morbid state. The diarrhoea, and in the fatal cases, ulceration of the intestinal mucous membrane, point to this origin, which is confirmed by the peculiar gastric form of diseases prevalent at the time.

So far as my observation went, I remarked that little benefit resulted from local treatment; I tried various astringent and other gargles and applications, borax and honey, muriatic acid and sulphate of copper, but found them to exert no appreciable influence upon the disease, while constitutional remedies certainly did. The ordinary astringents, such as catechu, catechu, and acetate of lead, often failed to check the diarrhoea, and even opium, given in as large doses as I thought safe to patients young, did not appear more effectual. The best internal medicine for this purpose was an acidulated decoction of bark, or an infusion of calumba and nitric acid (e.g. R Acid. nitric. dil. gtt. xij.; infusi columbæ, ʒi; tinct. cinchon. c., ʒiv.; sirupi aurantii, ʒj.) This controlled, in a considerable degree, the diarrhoea which had resisted other remedies, was readily taken by the children, and did not appear to produce any unpleasant effects. I have already mentioned the fact of my having used mercurial preparations, in the form of hyd. c. creta, combined with Dover's powder with considerable encouragement. I was induced to resort to this class of medicines, from observing the unhealthy condition of the alvine discharge. Of course I did not think of using this combination at the same time the patient was taking any acidulated medicine.

But the most valuable agent I met with in the management of the

cases was a speedy and decided counter-irritation of the abdominal surface. The excitement of the capillaries here relieved, in a remarkable manner, the congestion that existed within.

The best mode of producing a light, and at the same time a sufficiently enduring irritation of the surface, I found to be the laying a mustard poultice on the abdomen, till the skin was reddened, and the immediate application of a blister on the part for a single hour. Its action was speedy, safe, and effectual.

It controlled almost immediately the distressing and wasting diarrhoea, lowered the fever, and improved the condition of the mouth. Throughout the progress of the disease it was necessary to support the patient's strength, and for this purpose wine was given very freely. In all cases its first administration was carefully watched, and where it seemed to disagree it was instantly laid aside. But in the majority of cases it harmonized admirably with our intentions, quenching the patient's thirst, supporting his strength and diminishing the diarrhoea. Billard, the able French writer on the diseases of infancy, gives a correct view of the pathology of these affections of the mouth, both in his text and his illustrative cases; but he falls into the mistake so common to his countrymen, of supposing that the presence of intestinal inflammation must be an insuperable barrier to the administration of stimulants, forgetting the important truth in practical medicine, that inflammation may be of opposite characters, and require either a stimulating or an antiphlogistic mode of cure.

Firmly believing, as I do, in the intestinal origin of this disease, I am equally persuaded of the safety and necessity of administering stimulants with due discretion, but with sufficient boldness, even at an early period, in the progress of the case. *Part xii., p. 84.*

Discoloration of the Gums from Nitrate of Silver.—Dr. Branson, of Sheffield, observes that when nitrate of silver has been given for some time it produces a blue discoloration of the gums, similar to the effects of lead; and he regards the first faint appearance of the blue line as a valuable proof of the action of the medicine, and the depth of color of the line as affording a very useful warning that the limit is reached beyond which it is unsafe to proceed. *Part x., p. 187.*

Gums—Chronic Inflammation of.—Extract loosened teeth, scarify the gums frequently with a sharp lancet, and rub a little powdered tannin over the gum, twice or thrice a day; or apply compound spirit of horse-radish, or spirit of scurvy grass, with a piece of soft sponge. * * *

Ulcers on the Gums.—Apply diluted nitric acid (equal parts) with a camel-hair pencil. *Part xvi., p. 185.*

GUM RESINS.

Action of Carbonate of Potash on Gum Resins.—The attention of Mr. Hulsc having been drawn to the action of carbonate of potash on myrrh, he was induced to try its effect in reducing other gum resins, and the result was perfectly satisfactory.

Mr. Hulsc says:

The intrinsic value and utility of this alkaline carbonate as an agent when used according to the formula hereafter referred to, will become manifest to the practitioner and the pharmacist, especially in the preparation of the compound mixture of iron, the compound pills of iron, the compound galbanum pills, and, indeed, every other mixture and pill which contains a gummo-resinous ingredient in its composition.

With regard to myrrh, if one part of carbonate of potash be added to two parts of myrrh in the lump, and rubbed together, the alkali produces complete saponification; and if to this be added medicated or distilled water, we obtain an elegant emulsion of myrrh, and nearly the whole of the gum resin is retained in suspension, which would not be the case without the aid of the carbonate of potash, then with the usual proportion of sugar, using the raw instead of refined, adding first the raw water, then the sulphate of iron, powdered, and, lastly, the spirit of assa-meg, it will not be an unsightly mixture, and the precipitate will be very trifling.

Again, in the compound pill of iron, if carbonate of potash is used instead of carbonate of soda, and raw or Muscovado sugar in lieu of the refined, the pill mass can be compounded with less trouble than by following the college formulae, and which will retain a convenient pilular consistency for any reasonable period.

R Myrrh in lump, two drachms, reduce it to powder in an iron mortar with carbonate of potash, one drachm, then add sulphate of iron, powdered, one drachm; raw sugar, one drachm.

Mix, and beat all into a mass, without any liquid. Attention to this last remark is necessary, for the addition of any liquid renders the mass too soft, the raw sugar being sufficient to bring it to a proper consistency.

The solubility of this pill is such, that after having been made six months, I put two pills, of five grains each, into a glass of water, about the temperature of the stomach, and they were completely disintegrated in two hours. If water will thus serve to dissolve these iron bullets, as they are sometimes termed, we may expect the fluid of the stomach will have a much quicker action upon them.

I will now refer to that hitherto troublesome preparation, the compound galbanum pill. This pill, which to most gentlemen has ever been an annoyance, can be as easily and as readily prepared as the preceding one, and becomes as tractable and as convenient for making into pills as any other mass. Without presuming to deviate materially from the instructions given in the pharmacopœia, I proceed as follows:

R Myrrh in lump, and sagapenum, of each one drachm and a half; galbanum, one drachm; assafœtida, half a drachm.

Triturate these with two drachms of carbonate of potash, in an iron mortar, until the whole are sufficiently reduced; add raw sugar, two drachms, and beat all together into a mass, without any liquid, which mass will retain its consistency for any reasonable period.

The pill of aloes with myrrh, compound squill pill, compound rhubarb pill and other similar preparations, will be considerably improved if made with the assistance of carbonate of potash and raw sugar; but with any other than the compound galbanum pill and compound pill of iron, a small portion of water must be used.

The raw sugar (*saccharum non-purificatum*), as an ingredient in com-

pound pill of iron, is decidedly preferable to the refined, which alone will not form a mass.

In all pill masses and mixtures containing gum resins, the pharmacopoliast will find it preferable to use ingredients that have been powdered in his own premises.

In examining the solubility of gum resins in water with the aid of carbonate of potash, I find them to vary considerably. Myrrh is the most soluble, ammoniacum is next, sagapenum third, while galbanum and assa-fetida do not appear to be much, if at all, assisted by it. In galbanum there is a second stratum of precipitate, very flocculent, lying upon one more dense, but that is not the case with any other; and I question if it would be found so invariably in every sample of the gum, for the analysis of gum resins is differently stated by chemists, evidently owing to the differences in their qualities and composition.

This subject leads me to notice the practice of some of our brethren who keep, ready prepared, an emulsion of myrrh, for the purpose of dispensing Griffith's mixture more quickly. This is very objectionable, inasmuch as the emulsion by keeping becomes thin, and on mixing the other substances, a rapid precipitation takes place, leaving the bottle more than half filled with a nearly transparent fluid.

Part vi., p. 76.

GUTTA PERCHA.

Nature and Uses of.—Gutta percha is the native name of the exuded juice of a tree so called, indigenous to Singapore and its vicinity, and collected like caoutchouc, which, in appearance, it somewhat resembles. It is brought for sale in lumps, and at ordinary temperatures feels quite hard; when a piece of it, however, is plunged in boiling water, it softens, becomes pliant, may be rolled out, or molded into any form the operator chooses, and, after cooling, perfectly retains the form so given. When softened by the heat of water at or near the boiling point, it can be rolled out into laminae of suitable thickness for splints, and while still pliant placed on a fractured limb, and adapted to its contour throughout. It hardens ere it falls to the temperature of the body, and retains its form unchangeably. By applying flannel wrung out of hot water to the outside of the splints, the gutta can be again softened and turned up in any part or entirely removed and readapted.

Dr. Little showed its application as supporting splints in knee disease and in ordinary fracture; the patients expressed feelings of comfort under the gutta, which had replaced the uneasy pasteboard splints in previous use. This material can, of course, in ingenious hands, be turned to various purposes.

Part xv., p. 150.

Application of Gutta Percha in the Treatment of Diseases of the Skin.—When any abrasion of the surface of the body takes place, nature immediately sets to work to provide some impermeable covering for the protection of the delicate tissues from the action of external influences. This was the idea which led Dr. Graves to introduce a solution of gutta percha in chloroform for the same purpose in various diseases of the skin. The advantage of this preparation over collodion is, that it is not liable to crack

and peel off; but being more tough and extensible, it more nearly resembles the natural covering. The effect, he says, has been most favorable in the cases in which it has been tried, diminishing inflammation and aiding the restoration of the healthy structure of the skin.

The transparency of this artificial membrane enables us to watch the progress of the subjacent diseased skin, and its colorless nature prevents from disfiguring the face when the eruption occupies that part. Its perfect cleanliness, too, is no small advantage, and affords a very agreeable contrast when compared with the usual ointments, etc.

The saturated solution of gutta percha in chloroform is more especially suited to dry, scaly, tubercular and chronic diseases of the skin, but is also been used with advantage in erysipelas, impetigo, psoriasis, and in preventing ulceration from the pustules of small pox.

It is of great importance, and essential to the success of this treatment, to observe that the *gutta percha* solution should not be applied to the skin until the pustules are fully matured, or even begin to exhibit the first appearance of collapse, as indicated by the well known central depression of the apex; applied then, the solution is of the greatest service; *applied before maturation, it is mischievous.*

The camel's-hair brush should be plunged, the moment it has been used, into hot water, to prevent it from being consolidated by the coagulated gutta percha.

Part xxvi., p. 25.

Caustic Gutta Percha.—By mixing two parts of chloride of zinc with one of powdered gutta percha, in a tube over a spirit-lamp, a very weak and flexible caustic will be formed.

Part xxxiv., p. 27.

HÆMATEMESIS.

Acetate of Lead.—In five-grain doses or more, repeated, *pro re nata*, as advised in hæmatemesis.

Part vi., p. 1.

Treatment of Hæmatemesis.—[When the patient vomits blood, he is to be treated according to his constitution and the quantity discharged. When this occurs in plethoric subjects, or when there is much fever, it will not be desirable at first to check the hemorrhage; but when it arises from the intestinal canal, it is highly necessary to increase the natural secretions of the abdominal viscera, and especially that of the liver. This will be done most effectually by calomel or blue pill, with saline aperients followed next morning by sulphuric acid and sulphate of magnesia.]

When the hemorrhage is more considerable, and the patient appears to be much weakened by it, we must adopt immediate measures to arrest it, and this may be done pretty surely—if no organic disease is connected with it—by sugar of lead combined with opium; and, likewise, oil of turpentine, in small doses, seems to act very effectually here: from 15 to 30 minims for a dose, repeated four or five times a day. In persons already considerably blanched, and in whom the hemorrhage appears to be of a passive character, unaccompanied by any increased action, the medicated tincture of iron is useful. In the scorbutic forms of the disease, tonics and astringents are commonly employed; oil of turpentine and creosote, with other measures to support the strength of the patient. Even here

is necessary to see that the secretions are free, and to promote this muriatic acid is sometimes useful. *Melasma* is merely a modification of this affection, and the treatment is the same. There may be a discharge with the feces of blood, or matter of pitchy blackness; and sometimes there is accompanying it pain in the iliac and hypochondriac regions, and great agitation and pulsation. It is necessary to purge freely; castor oil and a few drops of turpentine are very useful, and acid mixtures, in most cases, are serviceable in promoting the natural secretion and tending to arrest the bloody flux.

Part x., p. 63.

Hematemesis.—The treatment of hematemesis is in some degree modified by the causes of it. When the hemorrhage is due to suppressed or inefficient catamenia, or to suppressed hemorrhoids, and occurs in plethoric subjects, it may be proper not only to use the local means presently to be enumerated, and to place the lower extremities in hot water, but even to phlebotomize the arm or foot. In addition to the above means, we must, in the case of a woman with torpid uterus, foment the pudenda and administer emmenagogues. With a man used to hemorrhoids and hemorrhoidal discharges, but in whom they are suppressed or scanty, a hot semicupium and stimulant suppositories or injections should be had recourse to. Internal styptics should simultaneously be administered, such as simple cold or iced water, or ice itself (if procurable); or an alum whey, consisting of a pound of that fluid, in which two drachms of alum are dissolved, and of which a small teacupful may be taken. Rose water may be substituted for the whey or oxymel. A favorite astringent pill in France is one composed of three or four grains of alum, two or three of sang-dragon (*calamus draco* and conserve of roses), of which from one to six or eight may be taken in twelve or sixteen hours. Some recommend, also, the application of bladders containing ice or cold water, externally, to the epigastrium. Such means will usually speedily succeed in hematemesis of this indirect and simple kind. The recurrence of it must of course be prevented by anticipating its causes—namely, by reestablishing the catamenia and the hemorrhoidal discharge, or else by reducing systematic plethora, obviating the necessity for either hemorrhoids or hematemesis.

Part xix., p. 95.

Oil of Turpentine.—Give oil of turpentine in doses of from twenty to sixty minims every three or four hours. It may be given in simple water, agreeably flavored, or it may be used in combination with compound infusion of roses, iced water, or solutions of tannic or gallic acid. *Part xxi., p. 116.*

Treatment of Hematemesis.—The natural method by which the bleeding is checked is the contraction of the stomach. Endeavor, therefore, to produce this contraction; and in accordance with the principle adopted, give the remedies as little diluted as possible, so as not to distend the stomach. Oil of turpentine, which will excite contraction of the stomach, and small doses of gallic acid in the solid form, are most to be relied upon. Let the diet be liquid, concentrated, quite cold, and given in very small quantities at once. Ice is objectionable, as distending the stomach; and blood-letting is only applicable in a few cases.

Part xxi., p. 362.

Hematemesis.—When acetate of lead and opium, turpentine, gallic acid, tannin, etc., fail, we may try ergot of rye; give a drachm and a half of the powder divided into eight doses—each dose every four hours.

Part xxx., p. 63.

HEMATURIA.

Tinct. Ferri Sesquichlor. (Tinctura Ferri Mur.) in Discharge of Blood from the Urethra, etc.—[Mr. Clay attributes the collection of blood in the bladder, which we occasionally meet with, not so often to disease of the bladder itself, as to disease of one or both kidneys. The small quantity of urine which is excreted in most of these cases is strong presumptive evidence that the kidneys themselves are in fault. The injection of warm water into the bladder merely removes the coagula without curing the disease. The same observation applies to the injecting of saline solutions, such as salt, which, however ingenious in preventing the coagulation of the blood which collects, does not act on the kidneys; and perhaps, only stimulates those organs unnecessarily. Mr. Clay proceeds as follows:]

In all cases where great discharges of blood have taken place by the urethra, it is generally remarked that the quantity of urine is small; and this is a strong presumptive proof that the disease is seated in the secreting organs, and not in the bladder: under such circumstances we can hope for no advantage by local applications to the inner surface of the bladder; it must be evident our only advantage is by constitutional treatment, assisted by local applications over the region of the kidneys. I have just discharged a case cured, illustrative of this subject. I found Mr. W— aged sixty, unable to pass any urine—a teaspoonful, or, at most, two, of blood coming away at every attempt; the bladder was distended, and the abdominal surface very tender. I passed the catheter; about six ounces of blood came away, considerable relief was given; the blood discharged was nearly pure, and destitute of urinal smell. As the quantity of blood discharged was but trifling, I proposed passing the catheter again next morning; in the meantime I ordered a warm fomentation to the abdomen, and gave the following:

R Tincture of muriate of iron, ℥j.; tincture of opium, ʒj.; infusion of Iceland moss; infusion of gentian, of each ʒiv. Let an ounce be taken every four hours.

After continuing the use of the tinct. fer. mur. for about ten days, he gave it up, being quite free from any unpleasant symptoms. This case was remarkable, as being one that had existed for some years, and all hope of permanent relief was lost; it only forms one of many that I have relieved, or entirely cured, by the same means; occasionally I have obtained relief from blisters and tartar emetic plaster over the region of the kidneys; but except in cases, and of no great extent, I have not found them of permanent benefit; on the contrary, few cases have withstood the tinct. fer. mur.

Part iii., p. 8.

Sulphate of Alumina and Potass in Hemorrhage.—Dr. N. Graves some time ago, recommended alum in fifteen grain doses, combined with dilute sulphuric acid, as a remedy in profuse menorrhagia and in the hemorrhage of abortion. Dr. Lynch relates a case of hematuria in which the following draught quickly restored the patient to a healthy state:

R Sulphatis aluminæ et potassæ, gr. xv.; acidi sulphurici diluti, q. s. ad ʒxx.; sulphatis magnesiæ, ʒj.; infus. rosæ, ʒj. Fiat haustus, ter quoties sumendus.

Part iv., p. 1.

Bleeding from the Urinary Organs.—Dr. Prout states that "when blood is derived from the kidney, it is in general equally diffused throughout the whole urine: on the contrary, when derived from the bladder, the blood for the most part comes away in greater or less quantity at the termination of the discharge, the urine having previously flowed off nearly pure." When the blood proceeds from the urethra, it will generally come away *guttatim*, or in a stream unmixed with urine, and neither preceded nor accompanied by any desire to make water. But there are many cases where it is almost impossible, from the absence of pain, etc., to fix upon the part whence the blood arises, and in these doubtful cases it will probably be found that the kidneys are the organs giving rise to it, from the existence of earthy concretions, which we know may form in the kidneys in great numbers, and to a considerable size, without furnishing any signal except that of hematuria, which may lead to suspect any mischief.

The treatment of hematuria must be exceedingly various. When the bladder is so distended that complete retention of urine takes place, recourse must be had to a large eye catheter and an exhausting syringe, by the aid of which, and the occasional injection of cold water, the coagula may be broken down and removed. If the hemorrhage returns, injecting cold water into the rectum or bladder, and, if necessary, from twenty to forty grains of alum in each pint of water may be used. Dr. Prout says this seldom fails, even when the cause is malignant disease. Among internal remedies, *Ruspini's styptic*, recommended by Sir Benjamin Brodie, in his published lectures, is no doubt a valuable medicine. Dr. A. T. Thompson says this consists in a solution of *gallic acid* in alcohol diluted with rose water. The French are very fond of the extract of *rhatany* root, the *krameria* of our pharmacopœia. Dr. Watson gave this to a female in scruple doses three times a day, and the hematuria ceased after the first dose, although the affection had resisted treatment for some weeks. *Gallic acid* enters into the composition of this vegetable extract, and it is worthy of notice, that gallic acid is one of those substances which, when introduced through the digestive organs into the blood, passes through the round of the circulation unchanged, and reappears in the urine; it is, therefore, proved to be a most useful astringent in more cases of hemorrhage than those which arise from the urinary organs. The styptic virtues of the *uva ursi*, *bistort*, *tormentil*, *pomegranate*, *kino*, *catechu*, and the several preparations of gall-nuts may likewise depend on the same principle, or rather, probably, on the *tannin*, as this exists in much greater proportions than gallic acid in most of these substances, although the medicinal effects are alike. In one hundred parts of *rhatany* root Gmelin found thirty-eight parts of tannin, and Peschier forty-two parts. Hence we find its value, not only in internal hemorrhage, but also in profuse mucous discharges, passive hemorrhages, as metorrhagia, and in relaxation and debility of the solids. But in those mucous discharges which proceed from chronic affections of the urinary organs, we shall find that *uva ursi* and *pareira brava* are the two most valuable of our medicines. When combined with *hyoseyamus*, and persevered in for a considerable time, Dr. Prout says the *uva ursi* is of the greatest use: on the other hand, Sir Benjamin Brodie places much more confidence in *pareira brava*, which he uses with the greatest benefit in cases of "*discharges from the urino-genital mucous membranes*;" in chronic inflamma-

tion of the bladder especially, Sir B. Brodie thinks it has the greatest influence, "lessening very materially the secretion of theropy mucus, and diminishing the inflammation and irritability of the bladder also." He gives it in the form of a concentrated decoction with tinct. hyoscyam., and where there is a deposit of the triple phosphates, he accompanies it with the muriatic or diluted nitric acid. His formula is, half an ounce of the root in three pints of water, boiled down by gentle simmering to one pint; of this eight or twelve ounces may be taken daily.

Part vi., p. 49.

M. Tissier, of Lyons, has been administering a new astringent preparation in hematuria, etc. It is prepared by digesting rhatany in sulphuric ether, by which he obtains a brown extract, soluble in water, and possessing an astringent taste when placed on the tongue. It is said to be particularly serviceable in cases of non-contraction of the uterus after prolonged labors and miscarriages; and in leucorrhœa, menorrhagia, etc., depending on a want of power and contraction in the tissues of the womb and vagina.

Part viii., p. 63.

Treatment of Hematuria.—[As there are various causes giving rise to hematuria, so must its treatment be varied correspondingly. No general plan can be adopted, and in this, as in all other cases, the general condition must be particularly attended to. Dr. Fife observes:]

General blood-letting, according to my experience, is seldom requisite, as in those cases where the circulation was most active, other means, followed by less permanent reduction of the powers of the system, invariably sufficed to subdue the excitement; where, however, the patient is young, vigorous, and plethoric, much time and suffering will, doubtless, be saved by recourse to it. The topical abstraction of blood, by cupping over the loins, where the kidneys are affected, is most beneficial; and where the bladder is similarly engaged, leeches to the groins, or perineum, were equally useful. In renal cases, dependent on, or connected with, sub-acute inflammation, counter-irritation, by means of the antimonial ointment, proved of great service. Blisters are to be avoided. Where the pain seemed connected with calculi of the kidney, friction with morphia, in the form of ointment, or the belladonna in that of plaster, applied over the loins, materially relieved it. In cases where the circulation was increased, and where sickness was not urgent, the tartrate of antimony was given with advantage, and where, by the reason of the presence of sickness and vomiting, it appeared contra-indicated, the digitals were advantageously substituted for it.

As a means of arresting the hemorrhage, the acetate of lead and sulphate of alum both claim confidence, although neither of these medicines is free from very decided objections, which may, however, be much diminished by their combination with other medicines; the acetate of lead, for example, should be combined with opium, and the sulphate of alum with hyoscyamus. When so combined, the constipating or paralyzing effect of the one is in a great measure counteracted, and the constipating and irritating tendency of the other, as certainly lessened. As a means of relieving pain, hyoscyamus and conium are decidedly preferable to the preparations of opium, and when given in sufficient doses, and at proper intervals, hardly less to be relied on. Where the pain is connected with the bladder, and that viscus is in a highly irritable state, supposito-

ries are most efficacious, and free from the objection which attaches to the liberal employment of anodynes by the mouth. The remedy against the discharge of blood in which I have most confidence, and which has in no case produced any unpleasant effect, is the *secale cornutum*. I have generally given it in doses of from ten to fifteen grains, in combination with the carbonate of soda, or potassa, and at intervals of from four to six hours, according to the urgency of the case. Where it at all disorders the stomach, as it rarely does, this tendency may be diminished by the addition of a few grains of ginger, or compound cinnamon powder. Of the alkalies, the liquor potassæ is the most convenient, being readily combined with the tincture of digitalis, where vascular excitement calls for it.

Of the acids, the sulphuric, hydrochloric, and nitric, may all be given with benefit, as all of them seem to have the effect of diminishing the hemorrhage, the selection of any particular acid being regulated by the circumstances attendant on individual cases. The vegetable acids I have not used medicinally, although I have allowed the use of lemonade, where patients desired it, and where no contra-indication existed. In decidedly chronic cases, both turpentine and copaiba have proved useful, appearing not only to diminish the tendency to hemorrhage, but also to act most beneficially on the mucous membrane, especially by lessening the discharge of mucus, which is necessarily attended with considerable waste of the powers of the system. The *pareira brava* and *uva ursi* have also been used with more or less advantage. The preparations of iron in combination with quinine and iodide of potassium, are useful in improving the general health and tone of the system; the hydrochlorate of iron has been supposed to restrain the hemorrhage, but how far it really possesses this power, I do not feel competent to pronounce any opinion. Cold, in the form of enemata, and also externally applied, has been highly recommended.

Part xiv., p. 88.

Case of Hematuria treated with Gallic Acid.—A man received a violent blow on the left lumbar region, from the handle of a crane. Three of the lower ribs were broken close to the vertebræ; there was excessive ecchymosis, and acute pain on pressure over the kidney, and the man was conveyed to the hospital in a state of great collapse. He passed blood and bloody urine. After bleeding, etc., Mr. Hughes administered gallic acid, as recommended to him by Dr. Neligan, in doses of two grains and a half, made into a pill with extract of gentian, every three hours. After the third pill, the gallic acid was detected in the urine (by tinct. ferri. mur.) and the quantity of blood in the urine immediately began to diminish. In a few days he was quite well.

Part xv., p. 143.

Treatment of.—When it arises from irritation of the kidneys by morbid matter, as lithic acid, endeavor to relieve these organs, by acting on the skin and bowels by purgatives and diaphoretics; apply counter-irritation by means of mustard—not turpentine or cantharides; and if the patient is plethoric, even take a small quantity of blood by cupping.

In that form arising from inflammatory renal dropsy, endeavor to restore the action of the skin by the use of the hot air bath, the debilitating effect of which may be counteracted, and its efficacy increased, by dashing cold water on the patient as soon as he comes out of the bath; further promote the elimination of water from the system by giving hydragogue purgatives, such as compound powder of jalap, or elaterium; and relieve

the renal congestion by cupping or leeching, which are more efficacious when the congestion has assumed a more passive character than at the commencement of the attack. Afterward give nutritious diet, with bitrate of potash in diuretic doses.

When the bleeding is the result of *general hemorrhagic tendency*, give astringents, as lead, tannin, or gallic acid. The latter is of the greatest value, and may be given in doses of as much as five grains two or three times a day, either suspended in mucilage, or made into a pill.

Part xii, p. 9.

Treatment of Hematuria.—Give oil of turpentine in doses of twenty to sixty minims every three or four hours. It may either be given in water agreeably flavored, or added to a decoction of uva ursi, chimaphila, pyrola, or with tincture of muriate of iron.

Part xii, p. 11.

Hematuria.—Dr. Rees mentions two forms of hematuria; the one produced by calculus in the kidney, and the other by malignant disease.

The diagnosis between these two conditions must depend on the observation of the following points:

1st. In malignant disease the blood is generally passed in larger quantity than in calculus of the kidney.

2ndly. There is more frequent tendency to nausea on slight occasions than in calculous disease.

3rdly. Microscopic examination of the urine will frequently show pus or mucus in excess, if there be calculus; whereas, in malignant disease, the sign does not so frequently exist.

4thly. The appearance of those suffering from malignant disease of the kidney, is nearly always indicative of a state of anemia more or less advanced.

5thly. In calculus, hematuria generally follows upon some unwonted exertion.

6thly. Careful examination of the abdomen will frequently lead to the detection of tumor if there be malignant disease of the kidney.

Treatment.—The same remarks made with regard to alkaline urine from irritation of the mucous membranes, may be applied to the presence of calculus in the kidney.

It matters not how the calculus may be composed—be it uric acid, or phosphate of lime, or phosphatic—be it soluble in acids or alkalies—we cannot treat it chemically while in the kidney. Our object must be to render the urine as unirritating to the mucous membrane as possible, and enable that membrane thus to bear the presence of the calculus with as little inconvenience as possible. There is another indication, however, which is answered by this alkaline and demulcent plan, and a most important one. It consists in the relaxation of the spasm of the canal. By effecting this, a small calculus may be often brought away, which otherwise might remain to increase, and perhaps destroy the patient. It is with this view that we should combine our demulcent and alkaline remedies with such sedatives as the patient can bear without disturbance of stomach. Our most favorable result, of course, will be the expulsion of the calculus. Next to this we must hope that it will become encysted, and, by being so fixed in the kidney, cease to cause irritation; while we have to fear, as the worst result, the setting up of inflammatory action in the body of the kidney. This may terminate in the effusion of lymph in the tissue of the organ, and in

subsequent contraction of the inflamed part; and sometimes the patient may be so fortunate under these circumstances as to have the calculus which has caused the acute nephritis, should it be a small one, impacted in the kidney, so as to create no further irritation. In a great many of these cases, however, the acute nephritis terminates in suppurative disease; and if there be any constitutional imperfection dependent on strumous or syphilitic taint, this is the way in which we may generally expect the case to end. All we can do under these circumstances is to support our patient, exhibit opiates, and render the renal secretion as unirritating as possible. It is absolutely necessary that such persons should avoid exercise in any way beyond that necessary to walking gently, or exercise in any easy carriage. Neglect of this doubles the danger to the patient, while the difficulty of enforcing the injunction is often very great.

With respect to the treatment of cases in which the hematuria depends on malignant disease of the kidney, of course we cannot proceed with any hope of cure. The anæmia so often noticed in these cases, which causes dyspnoea on slight exertion, and restless nights (from the facility with which any error in diet produces palpitation and throbbing of the carotids) may be to a great extent combated by the exhibition of iron in some palatable form. Perhaps the best preparation for the purpose is the tinctura ferri sesquichloridi, taken in doses of from *mx.* to *mx.* three times a day, the bowels being watched the while, and kept regular by the exhibition of mild and aromatic laxative medicines.

It may be objected to the use of iron that it frequently tends to produce hemorrhage. It is quite true that care is necessary on this point. Watch the effects of the remedy, however, and you will constantly find you can exhibit it with advantage; that it will not induce hematuria, and especially if it be exhibited in the form of the sesquichloride of iron tincture. With regard to the use of styptics, they frequently appear useful in cases where the disease is not much advanced.

The best styptic is perhaps tannic acid; it should be given in the form of pill, at intervals between the doses of iron, in doses of from four to eight grains three times a day. It should not be given in solution, on account of its being rapidly converted in the stomach into gallic acid.

Part xxiv., p. 132.



HÆMORRHAGIC DIATHESIS.

Treatment of the Hemorrhagic Diathesis.—The great object of treatment is to increase the quantity of fibrin in the system. This may be done in scrofula—in which disease fibrin is also absent, and is substituted by albumen—by a nutritious diet; but in the hemorrhagic diathesis we have not the necessary time. It has been discovered that fibrin invariably increases in quantity very rapidly during local inflammation; and Mr. Miller therefore suggests, that by rapidly causing a superficial inflammation at a point distant from the bleeding part, we shall accomplish our purpose; acetate of lead with opium may also be given in large doses. Dr. Christison says, the *pil. plumb. opiat.*, (Ph. Ed.), is the best astringent he knows. Each pill contains three grains of the acetate of lead, and half a grain of opium; two to six may be given daily; and as we have already noticed,

this dose may be considerably increased if the urgency of the case requires it. To diminish the quantity of *serum* in the blood, if the state of the patient will admit of it, is another indication of treatment; and this will be best accomplished by *sulphate of soda*, given in such doses as to purge freely. This salt has been found not only to diminish the quantity of *serum*, and thereby produce a better relative proportion between the constituents of the blood, but also to preserve the blood globules in their normal state. *Pressure* is another important step to be adopted; and in the case of bleeding after extraction of a tooth, plaster of Paris has been recommended for the purpose. *Styptics* of various kinds—*transfusion*, and a variety of other means of treatment have also been tried.

Part vi., p. 107.

Arrest of Bleeding in the Hemorrhagic Diathesis by Matico.—The subject was a lad about 4 years of age, who was first brought to Mr. Hamilton for bleeding from the tongue, which had been bitten in a fall. The use of caustic and pressure for two days had failed in arresting hemorrhage, and the mother was greatly alarmed, as he had before nearly bled to death from a slight wound about the mouth, and she had lost another boy by a similar oozing from a slight wound of the nose.

I first tried the actual cautery, the prong of a large steel fork applied to the bleeding point, quite red hot. This only caused a momentary stoppage. I then passed a small sewing-needle with a double ligature behind the spot, and tied on each side of it. This was successful for a time; but in an hour or two the child was brought back, bleeding as fast as ever. I recommended the mother to make the child keep a piece of alum in his mouth, continually sucking it. Fortunately he did not object to this, and after an hour or two it effectually arrested the hemorrhage. The child was a long time regaining its strength, or any approach to a natural color.

[About a year and a half after this, he again bit his tongue, and this time sucking alum failed in arresting the oozing. He was, as before, blanched, and the blood thin and watery.]

I tried pressure with my fingers, with a small piece of fuzzy lint; but the blood soon soaked through the lint. I then took a very small piece of the matico leaf, which I happened to have by me, and applied the lower surface over the bleeding point, and kept it there as long as the child would keep the tongue quiet, which was not half a minute. I kept the little boy in my study some time; but the hemorrhage did not return, nor did the leaf come off. As I knew, however, this would sooner or later take place, I desired the nurse to re-apply a piece of the same size and in the same manner as she had seen me do. The next day she brought him to me well. The first piece of matico had fallen off in less than half an hour; but there was then scarcely any appearance of bleeding. She applied a second piece, and the hemorrhage was completely arrested.

Mr. Young confirms the valuable properties of this substance in arresting hemorrhage from leech-bites in children, etc. He has also found great benefit from it in leucorrhœa, in the form of an injection, made by boiling an ounce of the leaves in a pint of water for ten minutes. And as an external application to hemorrhoids, in the form of an ointment, he has found it unsurpassed.

Part xii., p. 179.

Hemorrhagic Diathesis—Ten Days' Hemorrhage after the Extraction of a Molar Tooth.—[This patient, a boy 14 years of age, was found by

Dr. Clay, laboring under profuse hemorrhage in consequence of the extraction of the third molar tooth of the upper jaw; the gums and cheek were very much lacerated; various styptics had been applied without stopping it. Dr. Clay used matico, secale, Ruspini's styptic, and even the actual cautery, without the slightest benefit. Constitutional treatment alone remained, and, in consultation, it was decided he should take the following mixture:]

R Plumbi superacet., ʒss.; acid. acet. dil., ʒss.; sir. rhei., ʒss.; mist. camph., ʒv.; M. ft. mist., ʒvi. Sumat æger coch. magn. duo omni tertia hora.

Thus, five grains of the acetate of lead were given every three hours, or nearly so, in addition to which, pads, saturated with the liq. plumbi diacet. were applied to the bleeding surfaces, with as correct a pressure as possible. Twenty-four hours passed under this treatment without improvement.

At a second consultation, it was agreed to persevere with the acetate of lead mixture until the day following, continuing also the pads of lint saturated with the liq. plumbi diacet., covering the pads also with finely pulverized matico. On the following morning, much to the satisfaction of all parties, the bleeding was checked; this was the tenth day, and up to this time he had taken nearly a drachm of the acetate of lead. The boy began to complain of pain in the stomach and head; it was therefore evident we could not proceed further with the acetate; and as the bowels had not been moved since its exhibition, it was determined to substitute the sulphate of soda, which the American physicians speak so highly of. A saturated solution was ordered to the extent of a wineglassful, every four hours, and in a very short time the bowels were acted upon. The bleeding was perfectly arrested from the tenth day, great care being taken for some time in removing the pads, and which were for several days moistened with the liq. plumbi diacet. I have omitted to mention that the head was shaved when the constitutional treatment commenced, and that evaporating lotions were kept constantly upon it. From the tenth day, the boy very gradually recovered, though extremely reduced.

The case is an instructive one, as it serves to show how very little dependence can be placed on styptics, or, indeed, on any local application; in cases of hemorrhagic diathesis, constitutional treatment alone is the best, indeed, the only, mode by which we can hope for permanent advantage.

Part xiii., p. 234.

Oil of Turpentine in Hemorrhagic Diseases.—[This remedy, not a new one, for it has been noticed by several writers, has been used by Dr. Percy with the best results. We are told that:]

The cases in which its use is indicated are those of passive hemorrhage. It must not be employed in cases where there is an active determination of blood, and where the pulse is full. When the discharge of blood is the consequence of organic disease, as of disease of the uterus, or of tubercular disease of the lungs, the action of the remedy is not so efficacious; but the author has seen a case of scirrhus of the womb, in which the hemorrhage was for some time stopped by this remedy. The author has found the action of turpentine oil very rapid, an effect being manifest in a few hours, often after one small dose. In order better to ascertain its power, he used

sufficient. The best vehicle for it is almond emulsion arabic. When there is pain in the abdomen, a few drops of opium may be added.

Hemorrhagic Diathesis.—[J. R., aged 6½ years, sitting at the window and drawing in his head suddenly, bit his lip profusely. This continued until three o'clock next day, when it was uncontrolled in spite of the repeated application of cold water.

Several astringents were tried, as also nitric acid. A decoction of under surface of a matico leaf was then applied to the mouth, and an infusion of matico given internally. This did not stop the hemorrhage. At eleven o'clock, p.m., Mr. Poland applied the actual cautery to the mouth. On the following day the child's mouth was found to be covered with large patches of ecchymosis, like bruises after injury. He was ordered meat and vegetable soup, and ten grains of chlorate of potash in water. Under this treatment, persevered in for three weeks, he was recovered.

HÆMOPTYSIS.

Ipecacuan.—In moderate doses, recommended for the cure of hemorrhage. *Theory*—more rapid coagulation of blood, and influence nauseating remedies.

Treatment of Hemoptysis with Tartrate of Antimony.—The following formula recommended:

R Tartrate of antimony, two grains; sirup of pines, eight ounces. M. Dose, two tablespoonfuls.

of the pulmonary artery, it is in consequence of the direct effusion of blood from those branches which ramify on the air-cells, and that the blood expectorated has nothing to do with the bronchial mucous membrane or bronchial arteries; and that the blood may escape into the inter-vesicular pulmonary tissue, where, having no exit like the portion which is thrown out into the air-cells, it may remain. This constitutes pulmonary apoplexy. He does not allow that when blood expectorated is dark venous, it necessarily comes from the stomach, but correctly shows that it may be equally dark and venous when arising from these pulmonary branches: and that, when the stethoscope is applied, the signs of disease of the lungs will often be evident enough; at the same time, even blood from these vessels may be rather red, owing to its partial aëration. From these circumstances, when we find that in pneumonia the expectoration is tinged with dark venous instead of arterial blood, we may conclude that it is of a more dangerous nature than when the bronchial vessels only are implicated. When these last-mentioned arteries give rise to the hemorrhage, it is generally of a less dangerous nature and more scanty; although it occasionally happens that even when from this source it becomes alarming. One very important indication of treatment in cases of hemoptysis, is to relieve the congestion and arrest the further effusion of blood, by copious depletion; and the extent and promptitude of this measure will depend upon the fact whether the hemorrhage is arising from the pulmonary or from the bronchial vessels. If from the former, it will be more dangerous and extensive, owing to the blood plugging up and obliterating the ultimate divisions of the air tubes, perhaps to a great extent of surface; but if from the bronchial vessels only, this effusion will seldom be very extensive, and not nearly so dangerous as in the former instance, arising in phthisical cases perhaps rather from the congested state of the bronchial membrane than from ulcerative action implicating the vascular tissue. When free depletion has been adopted, according to the case, Dr. Graves relies chiefly on ipecacuanha given in doses of two grains every quarter of an hour, until there is some improvement, and then every half hour or hour until the bleeding stops. This remedy is to be preceded by a purgative enema and a saline cathartic. The ipecacuanha is recommended not only in these cases, but also in hemorrhage from the bowels, and even in hematemesis, in preference to the acetate of lead, which Dr. Graves employs only in those cases of passive hemorrhage in which opium is indicated, and then in combination with the last remedy.

Part viii., p. 54.

Hemoptysis.—Give oil of turpentine, in doses of from twenty to sixty minims every three or four hours, either simply in water or combined with infusion of matico.

Part xxi., p. 116.

Hemoptysis—Tubercular.—An excellent remedy is gallic acid, in doses of two or three grains.

Part xxii., p. 336.

Hemoptysis.—In hemorrhage from the lungs or uterus, give small doses of ipecacuanha combined with acetate of lead and opium.

Part xxiii., p. 299.

Hemoptysis.—There are two circumstances in reference to the circulation in phthisical lungs unfavorable to the occurrence of profuse hemorrhage. In inflamed lung, the blood-vessels, though tortuous, are free,

but in tubercular lungs the blood coagulates in the extremity of the vessel. But there is an additional point well worthy of your attention. When you look at this large vomica you observe a considerable band passing across it. Of what does this band consist? It contains no bronchial tube. Bronchial tubes readily ulcerate; and by that process expectoration from cavities is promoted. The band consists mainly of blood-vessels and cellular substance. Blood-vessels are inapt to ulcerate. The walls of the pulmonary arteries, when surrounded by tubercular ulcerations, instead of sharing the disorganization, usually thicken; by the deposition of food material, their calibre gradually lessens; after a time they cease to be pervious, they are filled with a thin, reddish, fibrinous plug, and thus formed into solid cords.

It is probably only in those rare instances in which such a vessel is suddenly torn before the calibre is perfectly closed that fatal hemorrhage is all likely to occur. The popular idea that all bleeding from the lungs is produced by ruptured blood-vessels is a serious error. The ordinary cause of hemoptysis is doubtless compression or obliteration of the pulmonary veins by the tubercular deposit; in consequence of which, blood, interrupted in its natural channels, overflows or exudes into the neighbouring bronchi. If this explanation be correct, hemoptysis moderate in amount must be regarded rather as beneficial than alarming. By preventing the stagnation of unhealthy blood, it must tend to oppose the extension of tubercular disease; and, as far as a conclusion may be drawn from the cases under my care, the tendency of hemoptysis of considerable amount would seem to have been rather favorable than otherwise.

In arresting hemorrhage from the lungs, undue haste should be deprecated. As a general rule, it is better to produce determination to other organs, than to employ direct astringents. Give a dose of calomel, or mercurial pill with henbane, followed by the use of half-drachm doses of sulphate of magnesia with diluted sulphuric acid administered twice a day, or antimony, with nitrate of potash. If the hemoptysis is passive, should be the best of the astringents to be used, as the following: *R* P. gum. arabic. p. sacch. alb. aa. ʒiij.; p. tragacanth, ʒiss.; alum, ʒij.; g. catechu, ʒij.; aqua rose, q. s., to form a mass to make sixty lozenges. Gallic acid is not so prompt and effectual as the acetate of lead, but suits some cases remarkably well.

The most powerful of direct astringents in the treatment of urgent cases is acetate of lead. You may give two grains for a dose in a mixture, with half a drachm of distilled vinegar; or if you give it in pill, take care to give acetic acid immediately afterward, in order to counteract the tendency of the carbonate of lead to produce colic. Turpentine is probably one of the most certain and suitable remedies in a majority of instances. Two drachms of spirits of turpentine, two ounces of mixture of gum arabic, and four ounces of infusion of matico or of cinnamon water, with thirty minims of tincture of capsicum, form an appropriate mixture, of which an ounce may be given at intervals. In slight cases, the infusion of matico alone is often sufficient.

When the hemoptysis is associated with suppressed catamenia and hysterical symptoms, lytta is of great value; but let me repeat the opinion that in a majority of instances of phthisis moderate expectoration of blood is useful, and that whilst you allay the apprehensions of the patient, you may leave the symptom to its own course.

Part xxiv., p. 7

Gallic Acid in Hemoptysis.—Of a case under his care, in which severe hemoptysis occurred, Dr. Bayes says:

He was becoming faint and livid-looking when I arrived, and I really was afraid lest he should have been suffocated. The air passing through the blood already in his throat produced a gurgling sound, which alarmed his wife, to whom it sounded like the "death rattle."

I took a drachm of gallic acid, put it in a six-ounce bottle, dissolved it in hot water, and added rather more than a tablespoonful of brandy. I cooled this mixture in some ice which was in the room, and gave Mr. R. a dessert-spoonful of it every three minutes. The pulse, which could not be felt at the wrist, recovered slightly after the third dose. At the end of half an hour, the face became less livid, and he seemed much revived; I, however, continued the gallic acid every five minutes until the end of the first hour, and afterward every ten minutes until nearly two hours had elapsed, when, to my great joy, the expectoration became perfectly inky. After the first inky expectoration the breathing became greatly relieved, and the patient fell into a quiet doze. He had taken the first drachm of gallic acid in one hour and fifty minutes. I then mixed a second drachm, in the same manner as the first, and gave him a tablespoonful of the mixture at half-past one o'clock, after which he fell asleep soundly; I then left him, with orders that the gallic acid should be given him, in five-grain doses, every hour, for six hours, while he was awake, or to be repeated every ten minutes, if the hemoptysis were to recur. On calling next morning, I found he had expectorated but twice, and the sputa were perfectly inky. I kept him under the influence of the gallic acid for three days, gradually diminishing the frequency of the dose. At the end of this time, as he had neither cough nor expectoration, I changed his medicine to the infusion of roses and sulphate of magnesia, and ordered him also to take five-drop doses of creasote, three times a day upon sugar; he now went on steadily getting well.

Perhaps one of the most satisfactory results of the large doses of gallic acid was the entire disappearance of the attendant diabetes, and the simultaneous reappearance of bile and sufficient stools.

The dyspnea was almost completely relieved as soon as the system was well saturated with the gallic acid. The difficulty of breathing was, no doubt, caused by the gorged state of the vessels of the lungs, which was relieved by the powerful astringent acting upon them from within.

Part xxvi., p. 51.

Hemoptysis.—Dr. T. Thompson "doubts if hemoptysis ever precedes the deposit of tubercle in the lung, and thinks that, in many cases, the local loss of blood may be advantageous to the patient by relieving congestion." He deprecates "undue haste" in arresting the hemoptysis, and adds, "as a general rule, it is better to moderate this symptom by producing determination to other organs than to employ direct astringents."

Should the hemorrhage be passive, and direct astringents be required in consequence of the loss of blood being excessive, alum is, according to our author, one of the best that can be employed; this remedy acts, he says, "more efficiently when allowed to dissolve in the mouth, than when taken in mixture." The following is the prescription Dr. Thompson recommends:

Take of powdered gum arabic and of white sugar, each three drachms;

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powdered tragacanth, a drachm and a half; alum, two drachms; catechu three drachms; rose water, as much as sufficient for a mass to be formed into sixty lozenges.

Acetate of lead is preferred to gallic acid, while turpentine is said to be one of the most certain and suitable remedies, in a majority of instances.

Part xxii., p. 1.

Hæmoptysis.—The only remedies to be trusted, in severe cases, are turpentine, gallic acid, chloride of sodium, or nitre with digitalis; acetate of lead, or alum, is not sufficient to meet the danger. You may give ten to thirty drops of turpentine every hour, and especially in weak cachectic individuals; it is less suitable for the young and plethoric. Gallic acid is preferable to other astringents, because it does not exert the same drying and constipating effects as tannin, etc. If you give chloride of sodium, one to two and a half drachms will be the dose.

Part xxxiii., p. 1.

HÆMORRHAGE.

Oil of Ergot of Rye.—Mr. Wright states as follows:

I have found this oil a valuable external application in cases of rheumatism. I have tried it in three instances, and in all of them it has proved curative. The affected part should be well rubbed with it for a quarter of an hour, night and morning, until relief be obtained. It is one of the best remedies with which I am acquainted for the cure of toothache. I have repeatedly known it subdue the pain when creosote has failed. But, perhaps its greatest value, as an external application, is in the arresting of hæmorrhage. I have often wounded small arteries in dogs and rabbits, and subdued the bleeding completely with a drop of this oil. Hæmorrhage from the jugular and femoral veins has been similarly arrested. The troublesome bleeding which sometimes follows the extraction of a tooth, and leech-bites, it is equally efficient in stopping.

In a severe case of epistaxis, I arrested the hæmorrhage by injecting into the nostrils equal parts of very dilute spirit and oil of ergot; and I have little doubt that in the severe cases of flooding which succeed delivery, the injection of this oil diffused through water into the uterus, would be productive of the happiest results.

Part ii., p. 1.

General Bleeding.—Advised in certain severe and intractable forms of local hæmorrhage.

Part ii., p. 1.

Extract of Muesia.—Suggested in cases of passive hæmorrhage, in doses of from 12 to 36 grains, during the day, in the form of pills.

Part ii., p. 1.

Treatment of Hæmorrhage.—Dr. Watson, in his lecture, says:

Next to blood-letting, *astringents* constitute the great resource against actually existing hæmorrhage; and among these, *cold* is one of the chief. It may be placed in direct contact with the bleeding surface: as when it is *swallowed* to restrain hæmatemesis; or cold water injected into the rectum in excessive and exhausting hæmorrhoids; or into the vagina, flooding from the uterus. Or it may be applied to the surface of the bo-

as near as possible to the seat of the hemorrhage; as to the nose and forehead in epistaxis; to the chest in hemoptysis; to the epigastrium in hemorrhage from the stomach; to the lower part of the abdomen or to the perineum in hemorrhage from the intestines, uterus, or urinary organs. But the influence of cold in constringing the smaller vessels is not confined to the part with which it is in contact; it will stop hemorrhage by the sympathetic shrinking which it produces in distant parts. Epistaxis, for example, has often been arrested by the sudden apposition of cold water to the neck, back, or genital organs.

Part iii., p. 48.

Nitrate of Silver, in Stopping Hemorrhage after Extraction of Teeth.—

Mr. Ray, after an ineffectual trial of other means, as pressure, astringents, etc., took a stick of nitrate of silver, rounded at the extremity, and firmly forcing it to the bottom of the cavity, allowed it to remain a few seconds in this situation; very little pain was experienced, and, upon its withdrawal, he was gratified in finding a complete cessation of the hemorrhage. The mouth was kept open with a cork, for about half an hour, to admit air freely, and insure the preservation of the clot, which might have been destroyed or removed by suction; she then took forty minims of opium and a teaspoonful of compound spirit of ammonia, and afterward rested five or six hours.

Part iii., p. 96.

Hemorrhage after Lithotomy Stopped by Creasote.—In a case of lithotomy it was found impossible to arrest the hemorrhage by any of the usual means, and no particular vessel could be discovered from which the blood might flow. The patient was at last reduced to the lowest ebb from the continued loss, and had already lost consciousness, when a sponge dipped in pure creasote was introduced into the wound, and pressed against the bleeding parts for an instant. The hemorrhage was immediately arrested. No particular pain was experienced, no unpleasant symptoms followed: thin eschars were thrown off, and the patient recovered.

Part iv., p. 117.

Creasote.—In arresting hemorrhage from small vessels, or the oozing of blood from abraded or cut surfaces, bleeding ulcers, and leech bites, a creasote ointment or lotion is often very effective. It acts by coagulating albumen, and thus forming a crust. Pure creasote may be tried when the bleeding is more profuse. In the hospital at Cadiz, Dr. Cormack saw it used with complete success, in the oozing of blood from the wound of a compound fracture. He never had the opportunity of seeing its power over pretty active hemorrhage, in the human subject, except in this case.

Part vi., p. 72.

Suppression of Hemorrhage.—Mr. Vincent does not agree in the common opinion, that it is best not to disturb clots, in cases of bleeding. He says:

The most important step in managing all cases of bleeding is, that the surgeon should be most careful to keep the bleeding vessels free from all coagulum. The smallest arteries will go on bleeding if they are covered with a clot, and many considerable hemorrhages will stop if the bleeding points are clear from all blood; even rather large arteries will sometimes permanently cease to bleed, if kept uncovered and exposed to the air.

I have every reason to feel assured, from what I have tried in these

cases, that the bleeding may be stopped in epistaxis upon these principles by which the patient may be saved from the annoyance of what is called plugging. The plan of the proceeding that I have adopted is to keep the parts which are bleeding freed from all coagulum, and this should be done in this case by syringing the nostrils so as to wash the blood out. Not if a styptic be used, such as the sulphate of zinc, it coagulates the blood as it issues from the vessels, and so far stops the bleeding; but there is a process going on, by which this clot is loosened from its adhesion, and perhaps on the second day the bleeding is renewed. This will happen repeatedly; so that these cases have ended by being plugged. But what I contend for is, that if the syringing be carried on until the bleeding ceases, it will not only stop, but not recur. It is generally considered of importance, that the water used in cases of bleeding should be cold; but from what I have observed, arteries will contract under the use of warm water, which has a better effect in clearing away the clots, and keeping the parts clean from the blood. I have already alluded to the influence of a coagulum in keeping up bleeding, when speaking of the necessity of squeezing out the coagulum in a pile when it is opened.

Part xii., p. 14.

Hæmorrhage—Transfusion of Blood.—In all cases of collapse induced by hæmorrhage, whether primary or secondary, transfusion of blood should be employed.

Part xi., p. 11.

Exposure of Bleeding Surfaces to the Air, a means of arresting Hæmorrhage.—Mr. Skey believes that no agent is at all comparable to its power to arrest bleeding from small vessels like rest and exposure to air. The surgeon who has least fear of hæmorrhage loses the least blood. "A small wound may be tortured by styptics, by compression, and by other unprofitable agents, till it becomes the fruitful source of hæmorrhage." Instances are recorded of the most alarming cases of hæmorrhage being at once arrested by the wound being freely exposed to the air.

Part xiii., p. 15.

Tincture of Mastic as a Hemostatic.—It is stated, in a recent number of "Schmidt's Jahrbucher," that Dr. Frankl has found the tincture of mastic an excellent hemostatic. He employs it in epistaxis, and in troublesome bleeding from leech-bites. It is applied to the points where the blood issues, by means of a camel's hair pencil. Terzer, a dentist of Vienna, is also reported to have used it successfully in hæmorrhage following the extraction of teeth.

Part xvii., p. 14.

Pagliari's Hemostatic.—M. Pagliari, a pharmacien at Rome, professes to have discovered a styptic liquor of great power; and several of the officers of the French army have testified to its efficacy.

The composition is as follows: Eight ounces of tincture of benzoin, one pound of alum, and ten pounds of water are boiled together for six hours in a glazed earthen vessel, the vaporized water being constantly replaced by hot water, so as not to interrupt the ebullition, and the resinous matter kept stirred round. The fluid is then filtered, and kept in stoppered bottles. It is limpid, slightly styptic in taste, aromatic in odor, and the color of champagne. M. Nepp, of Strasbourg, has substituted the white resin for the benzoin. Every drop of this fluid poured into a glass containing human blood produces an instantaneous magma; and by increasing

proportion of the styptic to the quantity of the blood, a dense, homogeneous, blackish mass results.

Many are the circumstances in which the surgeon may not be able to have recourse to the ligature, as in the case of friable arteries, secondary hemorrhage from deep-seated, painful, or inflamed wounds, the impossibility of seizing the artery, or where the hemorrhage results from numerous arterioles, which are too small or retracted, or from veins and capillary vessels. In all cases, in fact, where compression is now usually employed, without much benefit being expected to result from it, and often, indeed, proving useless or dangerous, this fluid seems indicated.

Part xxvii., p. 343.

Hæmorrhage.—A new hemostatic agent is benzoic acid, dissolved in alum. If you cannot arrest hæmorrhage by compression, and where it is not necessary to ligature the artery, soak a little lint in Monsel's preparation of benzoic acid and alum, and place it upon the bleeding surface. Professor Hannon's preparation is "Benzoic acid one part, alum three parts, ergotin three parts, water twenty-five parts—the whole to be boiled thirty minutes, with constant stirring, and renewal of water. Then it must be evaporated to the consistence of an extract. A layer spread over the bleeding surface produces instant coagulation. Compression is not necessary."

Part xxxi., p. 151.

Internal Hæmorrhage.—The following styptic, recommended by Dr. Warren of New York, will be found scarcely ever to fail in cases of hæmoptysis or uterine hæmorrhages. Sulphuric acid 3v., spt. turpentine, alcohol, aa. 3ij. Mix the turpentine slowly with the acid, add the alcohol, and keep in a stoppered vial. The dose is 40 drops, and it may be given rubbed up with sugar.

Part xl., p. 107.

HÆMORRHOIDS.

Internal Piles.—In the advanced stages of internal piles, an operation is required for their cure; but as the parts are frequently irritable and inflamed, thereby disabling the surgeon from reaching them, it becomes necessary to soothe and palliate for a time by leeches, enemata, the recumbent posture, and mild laxatives, such as confection of senna and sulphur.

Mr. B. Cooper says: The object, then, in these internal piles, covered with mucous membrane, is to surround them with a ligature tightly applied, to cut off the ends of the ligature and return the pile and rectum into the pelvis. The ligature should be tied very tight, but still you must be cautious: for if the base of the tumor be narrow, and the ligature a small one, you would cut off the pile as certainly as with the knife, and I have known several patients killed by cutting off internal piles with the knife or scissors. The piles hang by peduncles much smaller than the base of the excrescence; now the object is not to tie the neck or peduncle, but to surround the mucous membrane and submucous cellular tissue where it forms a flat surface on the gut, taking care not to include any muscular fibres; for if you do so the muscle is irritated, it contracts, and tenesmus is set up, which tells you what you have done, and then you had better at once remove the ligature and apply another more carefully. If

you do not tie the muscle, but only the mucous membrane and submucous cellular tissue, there is little or no pain produced, and the cure is almost infallible and unattended by risk. I always tie the ligature once, and then lay open the tumor with the lancet, and turn out the blood or coagula it contains. By this the ligature is a little loosened: so I tighten it, and then make the second knot, cut off the ends, and return all together into the pelvis. The opening the pile is a great advantage; for if the tense tumor be returned, even if you have no difficulty in getting it back, it acts as an extraneous body and causes great irritation, whereas there is nothing of the sort if it be opened; it is easily returned and causes no irritation. You may tie two, three, or four piles in this manner at one sitting: maintain the recumbent posture, and if there is any uneasiness about the parts, use fomentations. The bowels having been freely opened before the operation, keep them costive for a day or two to obviate the mechanical injury caused by the passage of a motion; and to compensate for this, you may excite the other secretions a little. Induce a little perspiration and a freer flow of urine. With regard to the after treatment, the habit of passing the stools at night is the most effectual means of preventing any return.

Part iii., p. 55.

Reduction of Hemorrhoidal Tumors.—Much difficulty is sometimes experienced in returning protruded hemorrhoids. Pressure alone, is applied in vain. But if the patient be directed, Dr. Marshall Hall says, to make forcible expulsive efforts, and pressure be simultaneously made, the tumor frequently recedes immediately, the sphincter is positively relaxed, the ligature which it formed round the tumor is removed, and the resection is easy.

Dr. Hall inquires whether a similar measure would aid the accoucheur in returning prolapsus uteri?

Part iv., p. 103.

Nitrate of Silver.—An ointment made from galls is a favorite remedy for hemorrhoids, but like camphorated spirit of wine in the cure of chilblains, it often fails. An ointment composed of from 5 to 10 grains of nitrate of silver, very finely pulverized, and an ounce of lard, succeeds, in many cases where the hemorrhoids are recent. When hemorrhage arises from internal piles, or from congestion of the lining membrane of the anus, the solution, in the proportion of from 10 to 30 grains to an ounce of water, injected with a syringe, is a preferable method. It ought, however, to be remembered that when the solution is strong, not more than a drachm of it should be thrown into the rectum. In prolapsus ani the efficacy of this solution is not so certain, although we have on several occasions succeeded in curing the patient with it.

Part v., p. 44.

Hæmorrhoids Vesicae.—Dr. Watson, in his lecture, says; Hematuria may occasionally be vicarious of some other hemorrhage, and especially of bleeding from the hemorrhoidal vessels. So that it is always right, in obscure cases, to inquire, whether the patient has been habitually subject to hemorrhage from the rectum: and if so, whether that hemorrhage is suspended.

Part vi., p. 50.

Palliative Treatment.—Mr. Stafford observes:

The treatment of piles varies according to the state in which we find them, and also whether they are internal or external. In simple piles, when they are external, and when there is no inflammation, laxatives internally, and astringents externally, are the best remedies. At first, per-

baps, give a dose of castor oil, or an aperient of senna and manna, and sulphate of magnesia combined, or any other aperient, except aloes and scammony, which will answer the effect of relieving the bowels. After this order laxatives, such as the confectio sennæ alone, or combined with potass. supertart. or sulph. sublim., and desire the patient to foment with the decot. papaver alb., or sit over a bidet of warm water. Apply a solution of liq. plumb. acet. dil. Use a cooling ointment, such as cerat. plumbi acet., or if the hemorrhoid requires being constricted, employ the ung. galli, the ung. oxyd. zinci, etc.; also, should they be in a relaxed state, desire the patient to use an injection of the decoction of the elm or oak bark, with the addition of alum in proper proportions.

In some cases it has been recommended by Sir Astley Cooper to puncture the pile with the point of a lancet, and squeeze out its contents. This should be done cautiously, for fear of hemorrhage. In chronic piles, the confectio piperis has been of great service continued for some time. It appears to stimulate and give a new action to the parts. If the piles are inflamed, then apply leeches, upon them, or to the verge of the anus, using an evaporating lotion, a poultice, an opium injection, or an opium ointment, as the case may require, repeating all these remedies as often as they may be necessary. The diet is of great importance; it should be bland, and meat should be avoided. Gruel, arrow-root, puddings, macaroni, etc., is the best food.

Part vii., p. 130.

Use of Nitric Acid as an Escharotic in certain forms of Hæmorrhoidal Affections.—[The safety and efficacy of the following mode of practice adopted by Dr. Houston in hæmorrhoidal cases, is confirmed by the testimony of Dr. Cusack. Before explaining his use of nitric acid, Dr. Houston enters briefly on the pathology of hemorrhoids. The form in which they commonly exist, is that of a simple varicose state of the veins, and it would be well if the terms "*varices*," or "*varicose tumors of the rectum*," were applied to such cases instead of the term "*hemorrhoids*."]

Dr. Houston condemns the use of both knife and ligature in certain forms of hemorrhoids, and recommends that the diseased parts should be destroyed by nitric acid, which possesses some peculiar advantages. The kind of disease to which this escharotic is more particularly applicable, is that which is called "*the vascular tumor*," called by different names, as hæmorrhoidal excrescence, erectile tumor, spongy hemorrhoid, varicose tumor, internal hemorrhoid, etc. It is an affection of the mucous membrane and sub-mucous tissue, and has generally for its basis a knuckle or bunch of varicose veins, but may also be a distinct and independent growth, the result of some other irritation in this region. Every surgeon has his fears, when he uses either the knife or the ligature in such cases, and if both the means could be supplanted by something more safe and efficacious, it would be more frequently resorted to. Dr. Houston points out the properties of *pure nitric acid* as an escharotic on which we may place much dependence, both for its safety and efficacy in those cases where a superficial destruction of the part to be removed is all that is required. "This acid at the density of 1500 destroys on the instant the vitality of the part to which it is applied, by the production of a chemical decomposition of its solid and fluid elements. The depth of the slough which is to follow, may be regulated in some degree by the quantity of acid laid on the part; and its extent, laterally, may be confined

with sufficient exactitude to the limit of its first application, by instantly smearing the whole over with olive oil, which neutralizes its further corrosive powers, by combining and forming with it a new but no longer corrosive compound." By this application, therefore, the surgeon may remove the tender, tumid, and bleeding tumor, with little pain and danger, and in the cicatrization which rapidly follows, a radical cure is effected. The way the acid is to be applied is as follows: Let the patient strain at stool, so as to cause the tumor or tumors to come into view; then let a piece of wood cut into the shape of a dressing-case spatula, be dipped in the acid and rubbed on the tumor to the extent desired. If a superficial slough only be required, one application will be sufficient; if a more deep one, then two or three applications may be made in quick succession, which being finished, let the part be well smeared over with olive oil.

Part vii., p. 181.

To Restrain Bleeding from Piles.—Dr. Allnatt accidentally discovered the value of the following: R Creasote, liquor potassæ, each a drachm water, six ounces. M. Use as an injection.

Part viii., p. 162.

Nitric Acid and the Actual Caustery in hemorrhoidal Affections.—To prevent disappointment in the application of the acid, it is necessary to have Dr. Houston's precept always in view. He says:

"The only case which the nitric acid will serve is the *internal bleeding pile*—that soft, red, strawberry-like elevation of the mucous membrane for which I have used the term *vascular tumor*, and which the acid removes by the production of a slough of its surface. The surface to be thus acted upon must be soft, and free from any coating of cuticle, such as is apt to form on it by persistent prolapse; for, if the acid be used in a case so circumstanced, nothing more than a removal of the cuticle may be expected from the application; and further, to insure to the caustic its full effect, the part to be touched by it should, beforehand, be dried and cleared of all mucous or other adherent fluid. There is no danger, that I know of, to be apprehended from the application of the acid; I have never seen any consequence from it beyond what I have stated in my report. But, to be successful, the remedy must, of course, be used with decision. The acid must be laid on in quantity, and rubbed in with force enough to be pressed into the pores of the surface. At the best, it produces only a very superficial slough; and, on this account, it will be necessary in some cases, as where the tumors are old and firm in texture, to make a second and even a third application. Of this the patient should, of course, be informed beforehand, that he may not be taken by surprise, in case such necessity should arise."

There are, perhaps, few cases of the kind in which some other caustic but especially in which the actual caustery would not be equally and even more efficacious; but the value of nitric acid in cases which do not require a deep slough, consists in its ready application and in its unobjectionable character. A patient will readily submit to have such a mode of practice adopted, when he would be afraid of the actual caustery, although it might not be any more painful than the other; or, as Dr. Houston expresses himself, "if the surgeon can thus, by the substitution of an acid for the knife, the noose, or the red-hot iron, succeed in stripping the services of their terrors, he will, by gaining upon his patients, steal march upon the disease, and thereby find an opportunity of applying to

an easy, because an early remedy." It is seldom that the application of the acid is painful. If the patient be very irritable, it may be well to give an opiate. These cases are very common. A patient, perhaps, is in the habit of parting with blood at stool, with more or less prolapse of the bowel, on the surface of which will be seen one or more of these vascular, strawberry-like tumors, from which the hemorrhage evidently arises. The nitric acid may be rubbed in with a piece of stick dipped in it, and the part may be immediately smeared with a little oil. The sloughs will come away about the sixth or seventh day. It will occasionally happen, however, either that the surface of the tumor is not soft enough for the acid to take effect to a sufficient depth, or that it is too large and extensive for such a superficial slough as that usually caused by nitric acid to be of much use; in this case we must have recourse to the actual cautery, which Dr. Houston applies in the following way: He introduces a speculum with a slit or hole in its side, so that the tumor, with a portion of the mucous membrane, if requisite, will squeeze through and appear within the speculum. The red-hot iron is then applied to the spot, and if there be much prolapse of the bowel, a small portion of the mucous membrane may also be touched with it. A slough of sufficient depth will thus be made, and after the healing of the mucous membrane, it is probable that the prolapsion of the bowel will be cured. There is no doubt that the actual cautery would be the best and most certain means of causing a slough in *all* cases of this description: either a superficial or a deep slough may be caused at pleasure; but in all cases where a deep slough is not necessary, the nitric acid will be found equally efficacious, and much less repulsive to the feelings of the patient. *Part x., p. 130.*

Ulcerated Pile treated with Chromic Acid.—Mr. Ure gives the following case:

J. L., aged 31, tailor, had at the verge of the anus a dark hemorrhoidal tumor, the size of half a walnut, of which the surface was ulcerated and extremely painful. The tumor had been extruded several days, and various attempts at reduction proved of no avail. The patient seemed in a most deplorable state, haggard and worn out by suffering, from which he could only obtain a brief respite by observing a half-bent posture. He has been subject to piles for some years. The bowels were open. I applied the chromic acid freely over the whole of the diseased surface.

[The application occasioned much uneasiness for some hours. A considerable slough came away, and the excrescence shrunk to a small size and became quite insensible. The bowels at first were torpid, and his appetite bad, but these soon yielded to epsom salts with infus. gentian, and in about a fortnight he was perfectly cured.]

Chromic acid is, as every chemist knows, a most powerful oxidizing agent, yielding half its oxygen readily to organic substances, and being reduced to sesqui-oxide. On this principle, I was led to employ it as an escharotic. It is exceedingly convenient for application, inasmuch as it consists of a thick crystalline pap, which, when rightly managed, does not spread beyond the prescribed limits; and so soon as its erosive operation is finished, passes into the state of inert pulverulent sesqui-oxide above mentioned. *Part xi., p. 183.*

Treatment of Internal Hemorrhoids.—[The bad effects which occasionally follow the excision of piles, render it very desirable to adopt some

other mode, if any can be found equally efficacious. These are avoided to a great extent by the use of the ligature, as practised by M. Amussat in many years, but certain nervous symptoms are sometimes thus produced of a troublesome character; on the discovery, therefore, of the solidified Vienna paste, he immediately adopted it.]

A great number of patients have already been operated on with the caustic, which consists of a cylinder composed of solidified potash and lime and the effects were far less serious than when the ligature was had recourse to. At first, Dr. Amussat seized the hemorrhoidal tumor with a pair of dissecting forceps, so as to enable him to cauterize it more easily; but, his son, M. Alphonse Amussat, thought that the circular cauterization of the pedicle, by means of forceps, might replace advantageously the cauterization of the whole of the tumor, and consequently requested M. Charrière to make several forceps *portu-caustique*. That in which Dr. Amussat gives the preference is similar to the forceps used in dressing wounds, whose rounded blades form two little cylinders of about an inch and a half in length, and from one to two lines in diameter, which increase in width as they become deeper, and are made to receive solidified caustic, or a paste made with the powdered caustic and a little alcohol. One of the extremities, longer than the other, is bent like a hook, so as to prevent the hemorrhoid from slipping when seized, and at the same time as the furrow exists on its internal surface, to cauterize the tumor. The instrument may easily be made with an ordinary dissecting forceps, by cutting off the extremity of one blade, bending the other at right angles and making a furrow on its inner surface.

Part xiii. p. 22.

Matico.—[Dr. O'Ferral has found matico of great service in certain hemorrhoidal affections. He writes:]

There is a form of disease engaging the verge of the anus, and a portion of the mucous membrane above it, in which I have found this vegetable astringent to produce unequivocal and rapid amendment. The condition to which I allude presents some characters in common with the "vascular tumor of the rectum," in which the nitric acid recommended by the late Dr. Houston is so often useful. But it does not, like the vascular tumor, require the nitric acid—it is not, like the inflamed varix, much influenced by leeching—and the operation for fissure is unnecessary for its cure. It appears to be the simple result of chronic inflammation of the integument at the verge of the anus, and of a portion of the mucous membrane above it, the latter assuming the appearance of that hypertrophy which is usually termed the villous state. When examined externally, the verge of the anus presents a considerable swelling of a purple color, and divided into separate tumors or prominences by fissures or folds of the skin. When these tumors are separated (which gives exquisite pain if hastily done), the bottom of the clefts is exposed, and the cuticle is there found to be abraded and the surface covered with a sero-purulent discharge. These fissures are sometimes deep, and penetrate through the cutis to the cellular tissue beneath. The consistence of the swellings is firmer than that of the tumor in the recent state, but wearing its purple tint. They can be emptied by pressure. They are, on the other hand, less firm than the hemorrhoid in the state of chronic consolidation. The cellular tissue of the part appears to be in a state of œdema, and covered by a thickened skin. Where the parts are forced or drawn out, the mucous membrane

found to be tumid, vascular, and apparently deprived of its epithelium; it is easily made to bleed.

This condition of the mucous membrane does not extend very far upward, and its prominence is little, compared with that of the vascular tumor of the rectum. It is not protruded at stool, and therefore, perhaps, yields but little blood, compared with what oozes from the former when occasionally strangulated by the sphincter. These are the anatomical characters of the condition in which the matico will be found to succeed. It appears to consist of chronic inflammation of the inner and external integument and cellular tissue, the prominence of the skin throwing it into folds, the clefts of which are apt to ulcerate, and when stretched during defecation, may occasion pain, which resembles in some respects that of fissure. I have not seen any trace of true varix, internally or externally, in this affection. The purple tint appeared to depend on congestion of the extreme venous radicles only. This complaint begins gradually, and is chronic in its formation, but at length becomes so painful, that the erect or sitting posture can scarcely be borne. There is pain in defecation, which persists for a short time only afterward. There is occasional, but not constant, bleeding, and only in trifling quantities, but there is constant painful uneasiness, with sense of weight, increased by walking, and at length rendering the erect position almost intolerable.

I have seen this state in several persons, at or beyond the middle periods of life. Both sexes are liable to it. It is called "piles;" but leeching and cold applications produce only temporary benefit, and warm applications have been found to increase the morbid sensibility of the parts. The mode of employing the matico in this affection is in the form of ointment or lotion. Dr. Young, of Winslow, recommends the ointment in "external hemorrhoids." In the affection here described, the decoction appeared to me to succeed best. A dossil of lint, soaked in a decoction, made by boiling two drachms of the leaves in six ounces of water, is to be introduced within the anus three times daily; another piece of lint, in form of a compress, similarly charged, is laid outside, and covered by oiled silk; the whole is supported by a T bandage. If the resemblance to vascular tumor should induce the application of nitric acid in this affection, it will be found to have done too much. The tumor of the mucous membrane is too slight to bear the escharotic, and the patient will be worse than before.

Part xii., p. 203.

Treatment of Internal Bleeding Hemorrhoids.—Dr. Watson states that for the bleeding internal piles, he has found injections of acetate of lead the most valuable remedy. He recommends to employ this remedy of the strength of one drachm of acetate to eight ounces of rain or distilled water, and to repeat the injection after every alvine dejection, as it is then chiefly that the hemorrhage occurs. Two ounces of the solution he regards as sufficient for one injection. An occasional blue pill he finds useful, followed by a dose of castor oil, with extract of taraxacum. For obviating the obstinately costive habit which usually attends hemorrhoids, Dr. Watson recommends as the best, two or three drachms of the following confection at bed-time: common rosin, well pulverized, one ounce, clarified honey, five ounces. Half an ounce of balsam of copaiva renders this confection still more efficacious, but it is then apt to disagree with delicate stomachs. This medicine produces, early next morning, a soft

consistent motion without griping, tenesmus, or any other disagreeable sensation.

Part III., p. 11.

Internal Piles, with Prolapsus and Hemorrhage.—In many cases internal piles, when the patient goes to stool, a number of small tumors protrude through the anus. They are usually of a deep purple or red color, resembling purple grapes or damsons, but sometimes much larger, equalling a chestnut or small egg in size. At first, when small, they either go up of themselves or are easily reduced: but they soon become larger; for when they get through the anus, the contraction of the sphincter strangles them and causes them to be much distended with blood; by degrees, also, they drag down more of the mucous membrane of the rectum. As they increase in bulk they are harder to reduce; and as they continue long out, the contraction of the sphincter becomes exhausted, the muscle relaxes, and offers less resistance to the protrusion, so that a portion of the bowel with the internal piles comes down, not only during the efforts at stool, but when the patient walks or rides, particularly in hot weather. The complaint then becomes truly distressing. One or more of the piles become inflamed, the blood coagulates in them and is absorbed, and lymph poured out, which becoming highly organized and full of vessels, forms what has been called the vascular tumor. At length the projecting tumors in the rectum are irritated and abraded by the passage of hard feces, and ulceration of their summits takes place, with a hemorrhage from their highly vascular structure. This is particularly apt to occur during the efforts in passing a motion, when the open pile, strangled by the pressure of the sphincter, and distended to the utmost, sometimes actually spits out blood, and in those cases you will see the sides of the night-chair dashed with blood of a florid color, which trickles down the patient's thighs and legs. Even after the piles and prolapsed bowel are returned, the hemorrhage at times goes on within the gut. I recollect the case of a shoemaker who had very free bleeding during each motion, but the first part of the motion was a large clot of bright blood, the result of the hemorrhage into the rectum after the previous motion. Besides the irritation, the pain, the serous discharge which always takes place when the prolapsus is large, the loss of time in the reduction, these constant daily bleedings, often to the extent of six or eight ounces of blood, finally exert a most injurious effect on the constitution. The patient's complexion is of a pale, watery-looking, yellow color; the sclerotic of a pearly white. He loses all energy; he suffers from the vascular reaction attending large losses of blood, viz., palpitation of the heart, violent headache, with noise in the ears; and, at last, from the deteriorated state of the blood, deprived of its more solid particles, anasarca supervenes.

[Mr. Hamilton considers internal piles of long standing to be of the kinds:]

1st. The most numerous are true varicose enlargements of the hæmorrhoidal veins, the soft purple piles covered by smooth mucous membrane. 2d. A varicose vein covered by mucous membrane, altered by inflammation, thickened and highly vascular, so as to bleed readily from the surface, which is red and rough. 3d. A firm red pile of rather a fleshy color, composed of highly organized coagulated lymph, permeated with numerous vessels, sometimes of large size, and which, when the mu-

membrane is abraded, and they are opened, bleed very freely. This is the vascular tumor, and is often the seat of the chief hemorrhage.

Now, with regard to the treatment. When the case is recent, the prolapsed piles not large, the bleeding small, and the constitution not affected, you are not called on to operate, as you can generally do a great deal by other means. Regulate the bowels by mild purgatives—a few grains of blue pill, and rhubarb at night, and a little of the infusion of roses and Epsom salts in the morning for a few days, after which, give the ordinary electuary of confection of senna, sulphur, cream of tartar, and mel rosæ, or, what is better, treacle, as the mel rosæ gripes some people. If, besides the pile coming down, there is bleeding, let the patient, after breakfast, throw up a pint of cold water with a drachm of nitre dissolved in it; this you will find very useful. Enjoin steady exercise, and moderation in diet. In thin, delicate subjects, in whom the disease is sufficiently common, tonics, particularly the *mistura ferri aromatica*, are of service. Should there be any serious organic disease, particularly of the chest, you should interfere as little as possible with the piles.

When the pain and irritation from the pile, as well as the hemorrhage, are beginning to weaken the patient, effectual means must be adopted. Mr. Hamilton on this subject remarks:

Of these, the chief are the actual cautery, which is now seldom resorted to; the nitric acid, cutting off the hemorrhoidal tumors, or tying them. In a very bad constitution, where you would not like to try either the knife or ligature, you may occasionally resort to the application of the actual cautery to the bleeding pile. It is much less painful than you would think.

With respect to the nitric acid, I have no confidence in it in cases where the prolapsus is large, as I have seen it applied in such cases with scarcely a brief temporary effect. Where there is a single bleeding vascular tumor, it will be found a safe and often efficacious remedy. As to cutting off internal piles either with the knife or ligature, there appears to be a common consent among the best surgeons in this country against it. Sir Astley Cooper mentions four fatal cases—three from hemorrhage.

The operation which I should recommend, and which you saw me perform in the two cases just discharged, is tying one or more of the piles.

Previous to the operation, as in those cases, you will give a purge the day before, because it is well to let the rectum rest for a couple of days after the operation. It would be wrong not to inform you that this operation, simple as it appears, has caused death. In one case tetanus followed; in another, gangrene of the rectum was the cause of the fatal result. Such consequences are, however, rare indeed; and out of a very large number of cases which I have experienced, I never saw any serious symptoms ensue. Pain sometimes follows the operation.

In true prolapsus, all the coats of the rectum come down; it is a protrusion of the upper part of the bowel through the lower, and out through the sphincter—a sort of invagination by the dependent position of the prolapsed bowel, which may be from one to several inches long. From the pressure of the sphincter it becomes very much swollen, and the reduction proportionally difficult. Inflammation finally commences, and if the part has been down beyond a certain time, ulceration begins round

its base, or gangrene of a portion of it ensues. What you must do will be best shown by the following case:

About a month ago I was asked to go and see an old man, whom I was told had been given up by his medical attendant. I found the old man very ill, in great torture, with a feeble intermittent fever, and dry brown tongue, a large, hard prolapsus, which had been down several days, and which was extensively ulcerated; he also had retention of urine. Attempts had been made to reduce the prolapsus, but they had failed; no sooner was it put up than it protruded again immediately. I first drew off the water. I then touched the ulcerated portions of the prolapsed rectum with solid nitrate of silver. This gave pain, but I knew it would be likely to prevent after mischief. I then, after having oiled my finger, reduced the prolapsus as I have described to you, beyond the internal sphincter; but directly I withdrew my finger, the prolapsus was protruded—this happened a second time. I therefore got a moderate-sized tallow candle, cut it in half, rounded the end, and after having reduced the prolapsus, before it came down I introduced the candle, and directed the man to keep it in for a couple of hours. It effectually prevented the bowel coming down, and he recovered. A conical instrument, such as this small glass speculum recti, would answer for the same purpose.

It is clear that, after having reduced a prolapsus, you have merely temporarily relieved the complaint. In young children, I suppose from a long continued straining at stool, with a relaxed mucous membrane and a weak sphincter, the disease is common enough, and very obstinate. It generally gets well, and only demands any treatment necessary to remove the existing causes of constipated bowels or diarrhoea, ascension of the rectum, etc. In adults, the disease is a very serious inconvenience. You are, therefore, called upon to afford, if possible, permanent relief. This may be attained either by Hey's operation of cutting off a fold of skin at the margin of the anus, so as to include in the piece removed a small portion of the mucous membrane; or by Dupuytren's, which is merely a modification of Hey's, being the same in principle, viz. to remove with a sharp scissors some of the folds which radiate round the anus, taking care that the incision should extend a short way within the anus. The same operation I have already advised for internal piles with prolapsus, may also be used in the true prolapsus of all the coats of the bowel, namely, tying a few small folds of the membrane just within the anus. But in old men, in whom the true prolapsus most frequently occurs, and in broken-down constitutions, where there is organic mischief elsewhere, all you can do is to palliate. Should the gut come down when the patient walks, you can use an anal truss, the ivory knob of which goes a short distance up the anus, and prevents the protrusion; or a pyriform piece of boxwood may be passed up the anus, and kept up by proper T bands.

Part xiii., p. 2.

Mode of Arresting Bleeding after the Excision of Internal Hemorrhoids.—Surgeons have, for the most part, been deterred, on account of the bleeding that has often followed, from cutting them off. But it must be remembered, that if there be any coagulum left in the tumor after incision, it will go on bleeding. Excise the piles, not including any of the membrane round them, even if there is a prolapsus, and in

small quantities of a solution of sulphate of iron, a grain to the ounce, which will completely restrain the bleeding. *Part xvii., p. 170.*

There are cases in which the inconvenience experienced does not, in the first instance, arise from the existence of hemorrhoidal tumors, nor from any inflammatory affection of the parts, but from portions of the relaxed mucous membrane becoming inverted and griped by the muscular fibres situated at the lower part of the rectum. The following case is mentioned by Mr. Abernethy:

A medical man having dined out was seized with some disturbance in his bowels, which caused him to get up during the night. He returned to bed, but could not rest. He experienced great pain and irritation about the pelvis, and was unable to attend to his practice the next day. When Mr. Abernethy saw him he had no less than thirty or forty scarifications upon his nates, from cupping-glasses which had been applied in the hope of procuring some relief. Mr. Abernethy, suspecting that a small plait of bowel had descended, and was griped by the sphincter muscle of the bowel; examined the parts, and found a small protrusion: this he returned to its natural position, and immediately relieved the patient.

The insensibility of the mucous membrane in this complaint frequently causes the symptoms to be referred to the neighboring parts, and, therefore, it is, I believe, that this disease often exists without being recognized. A patient will often complain of a dull pain over the sacrum, or a heaving, acting pain in the perineum, which neither he nor his surgeon can satisfactorily account for. In the course of time some other symptom presents itself, which draws attention to the rectum, and the usual remedies for piles are administered: laxatives, mercury in different forms, and sometimes local depletion, are had recourse to, without, of course, any ultimate benefit as long as the disease depends upon a mechanical cause.

Permanent relief in such cases can only be sought by means of such remedies as tend to brace the mucous membrane of the bowel. The simplest as well as the most efficacious method of accomplishing this is to remove one or two small longitudinal folds of the mucous membrane; when any portion of the lining of the bowel can be forced down this may be easily accomplished, in the same way as recommended for the removal of hemorrhoidal tumors. It is not necessary to remove the precise portion of membrane which has become inverted; the destruction of any portion will, after the wound is healed, have the effect of bracing the remainder. In this, as in the operation for hemorrhoidal tumors, it is the process of cicatrization which cures the disease.

When an operation cannot be had recourse to, other means may be tried, in order to give tone to the bowel; among the first of these may be mentioned frequent ablution with cold water. Different kinds of ointment may also be used for the same purpose. The following has been used with considerable benefit: *R Pulv. hydr. nitr. oxyd., ʒij.; pulv. capsici, gr. v.; ung. cetacci, ʒj. M.* *Part xviii., p. 188.*

Hemorrhoids.—These painful tumors, says Mr. Cooper, must be looked upon as resulting from a varicose condition of the veins of the rectum; a state generally produced by some obstruction in the portal system.

The superior hemorrhoidal vein returns its blood to the vena portæ, which, if it become obstructed from disease of the liver, would necessarily tend to congestion of the veins of the rectum; and this anatomical fact

teaches us, that in piles, the remedies may often be advantageously directed to the relief of the loaded liver. High living, want of exercise, or constipated bowels, frequently, therefore, induce congestion of the veins of the rectum, and their consequent varicose condition. If this congestion become permanent, the blood within the veins coagulates, and, acting as extraneous matter, excites inflammation in the surrounding sub-mucous cellular tissue: adhesive matter is then thrown out, and unites the congeries of varicose veins into a solid mass, which constitutes a pile. It sometimes happens that some of the veins included in the adherent mass still contain fluid blood, and, therefore, slight hemorrhage occasionally occurs. From these bleedings the patient frequently derives so much relief as to be led to believe that the attack of piles has subsided; such relief is, however, generally but of short duration, as the vessels soon fill again, and produce a return of all the symptoms. Sometimes the piles become so much elongated by frequent protrusion as to be rendered permanently external; when, from exposure to constant friction and other sources of irritation, their mucous membrane soon becomes converted into true skin. It would be supposed that in this condition the hemorrhoids would produce much less irritation, but such is not the case; for, as they still remain connected with the interior of the rectum, they continue to excite considerable disturbance, and sometimes becoming themselves inflamed, require leeches and strict dietetic observance for their relief, it being also necessary that the patient should be kept in the recumbent position. External piles do not, however, always appear as the mere result of the protrusion of internal piles, but are sometimes entirely independent of them, and arise from inflammation and thickening of the sub-cutaneous cellular tissue around the anus; these piles are apparently unconnected with a dilated condition of the veins, although originally the congestion of the latter may have produced the inflammation.

External piles, even when unattended by internal, frequently produce prolapsus ani, extreme pain in the course of the sciatic nerve, pain in the perineum, and in some instances even difficulty in passing the urine; nor are these phenomena inexplicable to the anatomist and pathologist, when it is remembered that these parts are supplied by filaments of nerves derived from the same source. The excision of piles forms, however, an almost infallible means of removing all these symptoms. A short time since I was consulted by a patient in the Edgware Road, who was the subject of both internal and external piles; his medical attendant had tied several of the internal ones without affording any permanent relief; but when I removed the external hemorrhoids the patient was rapidly cured.

Whether the piles be internal or external, they necessarily cause great inconvenience in the act of defecation, and the feces are generally passed in small portions, and are often attended by a flow of blood; these symptoms are not, however, referable to piles alone, as they may equally proceed from stricture of the rectum. It may, however, easily be ascertained by an examination per anum, whether the symptoms are produced by piles or stricture. The first treatment of piles should always bear reference to the state of the patient's general health; for, as they usually depend upon some disturbance to the function of the liver and bowels, or both, until the healthy action of these organs be reëstablished, there can be but little hope of removing the local disease. Small doses of mercury to act on the liver, and mild purgatives to excite a healthy action of the

bowels, constitute the means to be employed: but the purgatives should be of the least drastic nature, and not likely to act especially upon the lower bowels. The nostrum termed "Ward's Paste," or the confec. piper. nigr., of the London Pharmacopœia, will be found useful; but if they should produce nausea, as they frequently do, I have found the following prescription of very great benefit in restoring the natural action of the bowels: R Aloes decoc. co., ʒiiss.; sarsæ ext., ʒss.; sarsæ decoc. co., ʒiiss. M. Ft. haustus ter quotidie sumendus; giving also an alterative pill two hours before dinner to induce evacuation of the bowels at bedtime. If the irritation still remains so as to create an uncontrollable action of the bowels, considerable benefit will be derived from the use of the following pill: R Morph. acet., gr. one-sixth; hyos. ext., gr. iss.; camphoræ, gr. ij.; colocynth. ext. co., gr. ij. M. Ft. pil. bis terve quotidie sumenda. *Part xviii., p. 194.*

Treatment of Piles.—Internal piles Mr. Vincent cuts off by the knife; then he directs the injection of a solution of sulphate of iron in water, one grain to one ounce, which arrests all inconvenient bleeding. Of ligatures he disapproves, as painful and not always safe. We have known it cause fatal inflammation of the rectal veins.

In prolapse of the rectum, he recommends, as very useful and effectual, the injection of a solution of sulphate of iron; and under the employment of this remedy for one week, two weeks, or at most one month, he has seen the disease so often cured, that he is disposed to regard operation as unnecessary. *Part xix., p. 170.*

Palliative.—Always advise people who have piles to defecate just before going to bed, and that they may do this, give a dinner pill, containing about a grain each of aloes, soap, extract of liquorice, and gum mastic. *Part xx., p. 140.*

Collodion.—The application of collodion is suggested, with a view of exerting compression upon the tumor by the contractile powers of that agent. *Part xxi., p. 107.*

Tannin.—When there is no inflammatory action present, apply tannic acid made into an ointment with lard. *Part xxi., p. 326.*

Linseed Oil in Hemorrhoids.—Administer two ounces of fresh linseed oil, morning and evening. The amendment is generally so rapid that the remedy is seldom continued longer than a week. The only precaution the while being the abstinence from alcoholic drinks and stimulating diet. *Part xxii., p. 220.*

Treatment of Hemorrhoids by Operation.—Pass a thin copper or iron wire, in the form of a loop, made through a double canula, around the root of the growth, and strangulate it by drawing the wire tight. The canula may then be retained in its situation for any length of time, from half an hour to an hour or more, and the pile may then be removed with a knife or a pair of scissors. Should bleeding occur, immediate pressure may be made by the finger, or by pads of lint. Serious hemorrhage, however, it is stated, is of rare occurrence. *Part xxiii., p. 186.*

Hemorrhoids treated by the Platinum Wire made red hot by a Galvanic Battery.—The patient was affected with external hemorrhoids, connected both with the verge of the anus and with the lower portion of the

The forceps to which we just alluded were on Mr. Marshall's directions; they differ from the usual a ring about an inch in diameter at the end of each cept are closed, the rings are superposed, and gain part to be secured. Mr. Marshall prefers these for

Hemorrhoids.—[This kind of bleeding very from of safety-valve in obstruction of the liver; acting on the portal system. In such cases, it should not keep within due limits. But in some cases these debility and general anæmic symptoms induced.]

The remedy, which will be found most efficacious in hemorrhage, is the purified oil of turpentine, with described in the following formula:

R Olei terebinthinae pur., ʒss.; tincturae kino, ʒss.; aque cinnamomi, aque mollis, aa. ʒiij.; mistura miscendum; fiat haustus bis terve die eumendus.

It is important that the oil should be first care of the mucilage, and the other ingredients gradually draught may be well mixed; otherwise it may be

Turpentine, in the above formula, has seldom the pose of a styptic in this kind of hemorrhage.

As a styptic for internal passive hemorrhage, it The bowels are to be regulated by such aperients the liver, without irritating the rectum.

R Pil. hydrarg., extracti jalapæ (vel extr. sing.. ʒj. Misc.; divide in pilulas, xij.; ʒ quibus pro re nata.

Should the bleeding recur from a hemorrhagic tion of cold water should be employed every only evacuate the bowels, but give tone to the re

acid application, but for the second, the nitric acid is not sufficiently strong. For these, Mr. Lee has invented a pair of broad forceps, by which he grasps the tumor, and a portion of it near the operator is removed with the curved knife. The cut surface is then touched with the acid or with the actual cautery, and the parts returned into their natural position. If the portion cannot be protruded, then Mr. Lee has operated in another way. A rectum speculum is introduced having a slide; the opening is applied against the tumor, and when the tumor has bulged into the speculum, the slide is placed in the groove and the tumor firmly held between it and the rest of the instrument. A long narrow knife is introduced within the speculum, a portion of the tumor cut off and the nitric acid or the actual cautery applied.

Part xxix., p. 217.

Employment of the Hemorrhoidal Capsule—Vienna Caustic.—In many cases the Vienna caustic may be used. Before using this, or nitric acid, or any other caustic, it may be an advantage to ligature or encircle the tumor with M. Jobert's hemorrhoidal instrument. When this is applied, it will effectually prevent the caustic acting on the contiguous parts, and by its strangulation, may prevent much of the pain which would otherwise be caused.

Part xxx., p. 151.

Hemorrhoids treated by the Galvanic Cautery.—Two methods may be used for internal piles: one, that of absolute removal by the heated platinum wire; the other, that of destroying the substance of the tumor from the surface by the application of a disc-shaped coil of incandescent wire. Small isolated and prominent internal piles may easily be removed across their base; but when the mass is larger, it is best to cauterize it deeply, from the mucous surface.

Part xxx., p. 152.

Hemorrhoids.—In ligaturing piles, use *twine* rather than silk. In all operations on or about the rectum and anus, remember Mr. Copeland's golden rule, "*cut skin and tie mucous membrane.*"

Part xxx., p. 218.

Treatment of Piles.—The following is the formula of an ointment often found very useful as an application to piles, when not of very large size. It is copied from the Pharmacopœia of Guy's Hospital:

R Gallarum contrit., ʒij.; opii (emolliti aquæ cum ʒj.) ʒss.; liq. plumbi diacet., ʒij.; adipis, ʒj. Misce. Ft. ung.

We have here combined the astringent properties of lead and of galls with the sedative and anodyne ones of opium.

If the piles be large, ulcerated, and very painful, the free application of nitric acid will be the best; if in a more chronic condition, the above ointment may be ordered, or lunar caustic may be freely smeared over the parts. A good formula for an astringent ointment is valuable, even if the other means be in a general way preferred, since, in private practice, cases are not unfrequently met with in which the surgeon must prescribe without being permitted to inspect the part.

Part xxxi., p. 159.

Hemorrhage from Piles.—A woman, aged 38, pale, anæmic, and very weak from loss of blood from the rectum, entered M. Trousseau's wards. On examination, the hemorrhage was found to depend upon piles. She was ordered injections of nitras argenti, of various degrees of strength—from 20 to 40 centigrammes of the salt, without any benefit. Enemata of

rhtany were next tried, but also unsuccessfully. M. Tromsøen therefore ordered an injection of 50 centigrammes of sulph. cupri, dissolved in a glassful of water, to be administered daily. The hemorrhage gradually became less, and in eight days had quite disappeared. The patient was ordered chalybeates internally. *Part xxxi., p. 156*

Treatment of Piles.—Mr. Wormald ordered for a middle-aged man, of spare habit and yellow complexion, long the subject of piles, the following medicines: A pill consisting of two grains and a half of blue pill every night, a scruple of extract of taraxacum, dissolved in water, three times daily, and an injection of two grains of sulphate of iron to the ounce of water, to be used every morning. For the relief of the irritation caused by the tumors, and by the tendency to prolapse of the rectum which attended them, the man was directed to place just within the bow after every motion a small plug of cotton wool, well oiled. *Part xxxi., p. 311*

Use of Tormentilla.—Tormentilla is a very valuable vegetable astringent in cases of piles, passive hemorrhages, diarrhœa, etc. One or two ounces of the decoction may be given every three hours. *Part xxii., p. 9*

Piles.—When you have piles associated with protrusion of the rectum, the application of nitric acid is much safer, and quite as effectual a remedy as the ligature and the knife, and there will not be the danger from phlebitis which sometimes follows these operations. *Part xxxiii., p. 122*

Hemorrhoids—Internal.—When they are florid, granular, and do not project much above the surrounding mucous membrane, the application of nitric acid is the best mode of treating them; but if they are large, pendulous, or indurated, the ligature ought to be used; it is entirely free from danger if properly done.

Ligature of.—You must first empty the bowels by an enema, then seize the tumors with a forceps and draw them down; pass a double ligature through the base of the tumor, tie thoroughly tight in two portions, and return them within the rectum. You may give half a drachm of laudanum immediately afterward. Some surgeons include them in a single ligature, but this should not be done excepting they have a very narrow peduncle; the ligature is much more likely to slip, and you cannot draw it so tight.

The treatment of internal hemorrhoids should be, 1st, to remove the whole of the enlargements within the sphincter by ligatures; 2d, each tumor should be transixed by a double ligature; 3d, the ligatures should be tied as tight as possible; 4th, Enlargements exterior to the sphincter should be removed with the scissors. *Part xxxiv., pp. 167-168*

Use of the Ecraseur.—As a general rule we may say that there is no danger from hemorrhage when piles are removed by the écraseur, but this is not universal, for in a case where it was used for the removal of internal piles, the patient passed four ounces of blood an hour and a half after the operation; some time after this, twenty ounces of dark clot were passed. Opium and chloric ether were given, but the hemorrhage continued, and the patient died. *Part xxiv., p. 6*

Distinction between External and Internal Piles.—It is a very common mistake with students to confound external with extruded piles,

to call those internal which are out of sight, and those external which are visible. We need not say that this is an utterly false nomenclature. External piles are those which form without (external to) the circumferential margin of the sphincter, and are consequently always covered with skin; internal ones are those which are within the sphincter (not above it), and are covered by mucous membrane. External piles, consequently, are always dry and cuticular, internal ones moist and slimy. The external have a light uniform bluish tinge, varying according to the density of the skin over them; internal ones are bright and florid, or from all the shades of florid to those of livid and purple, according to the intensity of their congestion. External piles almost never bleed; internal ones almost always do so. External piles are dilated hemorrhoidal veins; internal ones are of a very different nature. External piles may be cut away with impunity, while to tie them would risk phlebitis and purulent absorption. Internal piles may be tied with safety, while to excise them is to risk fearful, and it may be, fatal hemorrhage. It is most important to understand clearly that the difference is one of kind and not of mere position.

* Internal piles are not dilated or varicose veins of the anus, for if cut across the hemorrhage is arterial, not venous; and if tied there is no risk of phlebitis. External piles may be snipped off, and there is no danger of bleeding after the vein has once emptied itself; internal ones, if cut away, bleed continuously and profusely, and their hemorrhage, as just stated, is arterial, not venous.

Part xxxv., p. 107.

Internal Hemorrhoids ought never to be Excised.—There are few principles more unquestionably established in British surgery than that on account of the risk of uncontrollable hemorrhage internal piles ought never to be excised. In this rule Sir Astley Cooper, Sir B. Brodie, Mr. Salmon, Mr. Curling, Mr. Quain, Mr. Ashton, Mr. Syme, and Dr. Brooke, all emphatically concur.

Part xxxv., p. 108.

Method of Applying the Ligature to Internal Piles.—The usual preliminaries of the operation having been observed, Mr. Salmon, of St. Mark's Hospital, passes a toothed tenaculum into the gut, with its teeth looking outward, and seizes the pile which it is intended to tie; this is drawn downward and held away from the margin of the sphincter, while the operator with the scissors makes a deep gash just at the margin of the juncture of skin and mucous membrane. The pile may be still further isolated by incisions at each side. A strong waxed silk ligature is now applied in the track of the deep wound; the ligatures are left long, and the piles not returned. The first dressing may be a compress of cotton wool; on the following morning a bread poultice may be substituted. As the pile is generally supplied by a single large artery at the upper part, there is no danger of hemorrhage from the first free incision.

Part xxxv., p. 109.

Perchloride of Iron in Hemorrhoids.—When large, first blister them, then apply the perchloride of iron to the denuded surface; by this means they shrink and soon disappear.

Part xxiv., p. 114.

Hemorrhoidal Tumors—Method of Using the Ecraseur for.—The bowels having previously been well opened, place the patient under the influence of chloroform, and on his left side, the right leg and thigh being flexed. Draw out the hemorrhoidal mass, and include the whole

within a firm twine ligature, along the track of which the chain of the écraseur must be placed, and shortened till it constricts the tumor. The tumor must be very gradually removed, the chain being slightly tightened about every fifteen seconds. An almost bloodless surface will be left, in which the track of the wound will be scarcely discernible. Gradate pressure must be now maintained against the anal opening, by means of the usual perineal bandage, and the bowels locked up for seventy-two hours after. It will be necessary to pass up daily an oiled elastic bougie gradually increased in size, to prevent adhesion, and so stricture of the rectum.

Part xxxvi., p. 25.

Tincture of Benzoin in Hemorrhoids.—Prof. Barker, of New York, mentions the following case of a gentleman who had for several years been suffering from internal piles, which had greatly impaired his general health from frequent bleedings.

One very hot morning in June, 1856, I was called to see him on account of severe hemorrhage. I learned that for several days he had lost a good deal of blood after his morning defecation, but this morning it was so excessive as to induce complete syncope. When I saw him he was still very faint, and there was a constant oozing of blood from the rectum, who was so sensitive that I could arrive at no satisfactory result from physical exploration. With a small syringe I injected into the rectum a half ounce of tinct. benzoin co. as soon as it could be obtained. Its effects were quite striking. He was at once aroused from his syncope condition, and since that time has never suffered from the hemorrhage.

Part xxxvii., p. 3.

Piles and Prolapsus Ani.—Nitric acid will only prove speedily and effectually serviceable in those cases of internal piles where the diseased texture is only of moderate extent, has a broad base, and presents a very vascular appearance, as though the excrescence was composed chiefly of minute arterial branches. When, however, the hemorrhoidal excrescences are very large, and of a blue appearance, mainly consisting of venous ramifications, nitric acid should not be applied, neither should it when patient is suffering from what is called an acute attack of piles.

In cases of prolapsus ani of considerable size, when there is not a complication of large or several piles, and when the mucous membrane is simply thickened and relaxed, this remedy will be eminently serviceable.

Part xxxvii., p. 130.

Bleeding Piles.—One of the simplest and surest means for temporarily checking this kind of hemorrhage, is the application of perchloride of iron dissolved in glycerine, and applied on a piece of lint.

Part xl., p. 311.



HAIR.

Trichopathy and the Chemical Pathology of the Human Hair.—[The varieties in the color of the hair, Dr. Cattell considers, depends on the presence of sulphur, and not on colored fatty matter. The variety of color, however, he says, depends upon the relative quantity actually existing in the hair, in combination with oxide of iron. Dr. Cattell observes:]

Tricho-crology is a compound Greek term, which I have devised appositely to express the chemical processes employed in reducing some of the unseemly varieties of color, to which the hair is subject, to a supposed standard or standards of natural or ideal beauty. These embrace the formation of paste, pomade and liquid.

I. *Phumiform Hair Dye*.—1. Oxide of lead, three ounces; carbonate of lime, two ounces—mix into a proper consistence with hot water, and apply it to the hair, enveloped in oil-skin. 2. Carbonate of lead in the place of the oxide of lead, and proceed as in the other case. The efficacy of this stain depends on the formation of a plumbite of lime.

II. *Steariform Hair Dye*.—Nitrate of silver, a drachm; nitric acid, two drachms; iron filings, two drachms—mix. After the lapse of a few hours, pour the supernatant liquor on two drachms of oatmeal. Lastly, well mix with three ounces of lard.

III. *Chulosiform Hair Dyes*.—1. Silver, two drachms; iron filings, half an ounce; nitric acid, one ounce; water, eight ounces—mix. When the metallic substances are dissolved, pour off the supernatant liquor, which constitutes the dye. 2. Nitrate of silver, eleven drachms; nitric acid, a drachm; distilled water, twenty ounces; soap (*sap. viridis*), three drachms; gum arabic, a drachm—well mixed. 3. Nitric acid, a drachm; nitrate of silver, ten drachms; soap (*sap. viridis*), nine drachms; mucilage, five drachms; water, thirty-seven ounces and a half—mix. This differs from the foregoing only in proportions. 4. Lead filings, two ounces; hartshorn shavings, one ounce; oxide of lead, two drachms; camphor, a drachm, water, a pint. Boil for half an hour, and when fine, pour off the supernatant liquor on diacetate of lead and rosemary leaves, of each one drachm. Again boil, and when sufficiently fine, pour off the supernatant liquor, which constitutes the dye.

Of these preparations, as stains for the hair, none claims so decided a preference as the last. It can produce injury to neither the hair, skin, nor brain, and possesses the advantage of communicating a beautiful color and curling property to the hair. Whatever objection there may be to the use of dyes containing the nitrate of silver, from their liability to darken the skin, still I regard them preferable to the employment of caustic earths, owing to the depilatory action of the latter. Before the application of any liquid stain, it is necessary that the hair be freed from all greasy matter. A close brush and a comb are all the requisites in staining the hair. Connected with the general pathology of the hair, the only two points to which I shall now refer, are alopecia and calvities—baldness and fall of the hair. Alopecia may arise from any cause destroying the vitality of the bulb of the hair—as various fevers, the wearing silk hats, the existence of what, in common parlance, is called a worm at the root, neglect in cleansing the head, etc.

Calvities follows precisely analogous causes, and merely differs from alopecia in degree. To remedy these affections, it would appear, by our daily advertisements, that every advertiser had discovered some secret process—had, in fact, ransacked the whole arcana of science. But leaving these, and the victims that use them, I will mention a general remedy or two which will be found much more efficacious and infinitely more satisfactory in their results than bear's grease, Macassar oil, or any other advertised preventive or curative.

1. Rosemary, maiden-hair, southern-wood, myrtle berries, hazel bark—

of each two ounces. Incinerate, and with the incinerated substance make a strong ley, with which to wash the hair at the roots every day. Keep the hair cut short. 2. Carbonate of potash (pearlash), two drachms; water, a pint; use as the preceding. The efficacy of both these remedial applications depends upon their alkalescent character.

But where a greasy substance is required for the hair, I would suggest the substitution of the Elaine of olive oil; though expensive, it will in many cases well repay the use, as it never thickens, engenders scurf, or in any way produces detriment to the hair, like common oil or pomade. The only other greasy matters which I would suggest as substitutes for the Elaine, are ox marrow, well agitated in a mortar, and castor oil, freed of its adhesive matter.

Part xiv., p. 25

Glycerine.—A wash for the hair. *Vide*, Art. "Glycerine."

HAND.

Rules for making Incisions in the.—*Vide*, Art. "Whitlow."

Conservative Operations on the Hand.—As a small but not unimportant matter of "minor surgery," we have recently seen some five or six amputations of fingers for scrofulous and other diseases at various hospitals, involving a practical point, on which surgeons do not seem well agreed; namely, whether in removing the index, middle, or ring fingers, for instance, it is better to save as much as possible of the phalanx next to the palm, or remove the phalanx and the head, and a small part of the metacarpal bone, in order to render the hand less unsightly. Mr. Erichson, as a rule, removes as much as possible of the bony parts with the diseased finger, and believes he thus leaves a more shapely hand and one more useful. If we take the ring finger, for instance, on which he operated, and leave the first phalanx untouched, it is only in the way subsequently, as always getting injured, ulcerated and cut; but if, on the contrary, the surgeon, when called on to remove the finger, makes a *V* incision at the back of the hand, he can easily take away the entire finger and head, a part of the entire metacarpal bone, when the little or middle fingers can be brought into apposition, and in a large hand especially, the result of the operation can scarcely be noticed, while the entire hand has lost none of its efficiency. Where the index finger is the one diseased, some surgeons even slice off the metacarpal bone, whether affected or not, by a peculiar slanting or oblique movement of the small saw, a single line of cicatrix marking the original wound; a few stitches to hold the parts in contact and common water-dressing being all that is necessary afterward to complete the cure. If the metacarpal bone be involved in the disease, there can, of course, be no question as to its removal, and instances are given of excision of the index finger, together with the entire metacarpal bone, with most unexpected and admirable results as to the appearance and usefulness of the hand subsequently.

Mr. Fergusson pointed out these various operations to his class, and one even still more strange in the practice of Mr. Butcher, where the magnum, the cuneiform, trapezoid, and unciform, were entirely removed, the inferior edge of the lunar pared, two-thirds of the fourth and fifth metacarpal bones were removed, and the remaining parts of the hand were brought into apposition, and the result was a hand which was not only useful but also shapely.

carpal bones also excised, four arteries ligatured, yet leaving a useful hand ! All our surgeons seem agreed, however, that the same rule does not hold good with respect to the tarsus as the carpus. Mr. Erichsen says the rule is the opposite ; and in the amputation of toes, the big toe especially, we cannot leave too much bone, as a surface on which the perpendicular axis of the body is to rest, while in amputation of fingers we cannot, on the other hand, cut too much away. *Part xxiii., p. 146.*

Gunshot Injuries of the Hands.—On this subject Mr. Wyatt remarks as follows :

It has been said, as an aphorism, that amputation should be the last resource and even opprobrium of surgery, as death is of the practice of medicine ; still, impossibilities cannot be performed, or a limb saved which sound experience says can no longer be preserved. In former days, wounds of the hands and fingers were much dreaded, on account of the liability to tetanus ; as the nature and treatment of gunshot wounds have become better understood, we place more confidence in the resources of Nature, and have become less desirous for the doubtful *éclat* of operations. It has been admitted that the type of diseases has undergone an extraordinary and almost radical change during the past five years, and that the cause for the severe treatment then employed has, consequently, long since passed away ; may we not, as practical surgeons, incline toward a similar opinion, with reference especially to gunshot wounds ? for I conceive that the spoliative and expectant systems of treatment are but the analogues of operative and conservative surgery, the *status* of which we shall improve, in proportion as we prove it to be less of an art than a science. I believe that it would be most desirable to follow the consecutive symptoms of a given disease, uncontrolled, to its termination ; by that means alone shall we be able to estimate the value and force of our particular remedies.

Certain cases must have come under the cognizance of the attendant surgeons during the Crimean war, where, after much deliberation with reference to the practice to be pursued in a very severe injury, the issue has been considered sufficiently doubtful to give the patient the chance of preserving his mutilated limb ; and, almost contrary to all expectation, the result has proved successful. Such a case occurred to me. A man was wounded in the trenches by a fragment of shell, which carried away the whole of the sural vessels of one leg, fracturing at the same time the fibula in two places. He had apparently a good constitution, and, after a most anxious reflection, I decided to give the man the chance of having even a distorted limb ; although it was by several surgeons considered almost too great a risk. The man was himself much opposed to any operation. After great care and attention he was in eleven weeks considered sufficiently recovered to undertake the voyage to England, with rather an awkward leg, it is true ; but still it was one which he would have been very loth to exchange for the best substitute in cork or wood that could ever be produced. Monsieur Bandeux, the distinguished inspector-general of the French army, who has lately made a tour of inspection through the allied camps, informed me that it is extraordinary what an amount of preservation of limbs is now attempted, by resections, at their military hospitals, after injuries which formerly would not have been considered amenable to such treatment, and with more than great success ; for it appears that out of twenty-nine cases of resection performed by him—

self, only three were fatal, which is a result, I think, sufficiently satisfactory, but they were performed in large military hospitals in France, and not in field hospitals, in position even, much less in bivouac after an action.

The more remote the seat of injury from the larger articulations, the greater freedom, I conceive, may conservation be attempted; but, preservation of limbs after injuries near the larger joints is attempted most mature deliberation is necessary; indeed, I cannot conceive a more important duty to devolve upon the military surgeon, or one requiring more experience of nature's resources, as regards future prognosis; nor can I conceive anything so distressing as to be obliged to remove a limb which has proved useless after a so-called cure of conservative surgery, and this contingency must be always remembered in military practice, very much doubt if we are not always justified in attempting to preserve portions of the hand, even after the most severe injuries. I think the especially where the tendons are intact, notwithstanding that the metacarpal bones may be much comminuted, we should endeavor to preserve phalanges, provided the patient's constitution is good. I must, however, confess, that I believe unless the state of the wounded after an engagement can be such as to render them free from the discomforts and dangers attending frequent locomotion, that excisions of the joints of the low extremity should rarely be performed; and this opinion I have arrived at from very practical experience during this war. What, for instance, an untoward result could be anticipated from those wounded soldiers after the battle of Alma and Inkermann, were removed to Scutari, to be placed in a crowded hospital, after a tedious voyage of several days? If it be admitted that after treatment of excision of joints requires great care and attention, then it is manifest, that where such cannot be obtained it will not be desirable to venture too much in that direction. Hemorrhage after gunshot injuries in the hand is often most difficult to control; indeed, I know of one case where amputation was advised, after delivery of the artery had first been attempted with no success: in this case, sure at the seat of injury was impossible, on account of the inflammation and sloughing which had followed; every kind of styptic was also tried in vain: and the lad had lost a large quantity of blood: pressure was carefully applied over the course of the radial and ulnar arteries, and ice could not be obtained, a syphon was constructed, by which cold water was allowed to drop perpetually on to the wound: this was continued for twelve hours, when all hemorrhage ceased, and subsequently a good recovery was made. It is also worthy of note, that during this war hardly a case of tetanus following wounds have been reported; and as such a complication was at one time supposed to be peculiarly liable to follow in injuries of the hand in military practice, how can we account for the immunity during this campaign, except from the improved system of treatment employed? Of all gunshot injuries in the neighborhood of the hand, I think the greatest danger to the subsequent recovery of the member arises from those cases in which a ball has penetrated the carpal bones along the axis of the forearm, on account of the extensive irritation which ensues. *Part xxxiv.,*

Wounds of the Hand.—It is a practice often productive of inflammation and thecal abscess (especially in the working classes) to encircle every wound of the fingers with strips of adhesive plaster. Instead of this, the first thing to be done is to cleanse the hand by soaking in warm water, apply merely

of lint or linen wetted in tepid water. If it be a severe lacerated wound at the back of the hand or palm, pass a finger through an aperture in the linen, which is thus enabled to support the parts very firmly; raise and support the arm on a pillow, and keep the linen constantly wet with cold water dropping on to the part. *Part xxxvii., p. 121.*

Wounds of the Palmar Arch.—In hemorrhage from wounds of the palmar arch, correctly adjusted pressure should supersede that more painful and hazardous procedure, hitherto deemed requisite, viz., indirect arterial deligation. The graduated compress affords the most effectual mode for its employment.

Dr. Arnott gives the following directions: First, bandage the fingers separately, and continue this upward to the wound, and apply partial compression to radial and ulnar, or brachial arteries, according to convenience. It is of primary importance that the compress should be placed in a dry bed; for this purpose lightly pencil over the wound with nitrate of silver, by which means the divided vessels are constricted to some extent, and an adherent film or pellicle is instantaneously formed upon the surface, highly advantageous in allowing the deeper portions of the compress to be accurately and duly applied. Now apply the compress piece by piece, the smallest first, accurately in contact with the bleeding point; over this others, gradually increasing in size. The whole conical mass is now covered by the bandage continued upward, keeping all correctly adjusted. *Part xxxix., p. 157.*

Injuries of the Hand, Fingers, etc.—Don't be in a hurry to amputate a finger or hand, however severe the injury. It is surprising how nature will cure injuries of small bones and joints, when the parts are connected only by shreds of lacerated skin or flesh. In the hand particularly preserve the thumb and a finger or two. *Part xxxix., p. 146.*

Wounds of the Palmar Arch.—Compress the vessel in the wound by a firm roller, lay the fingers over this in a flexed position, and maintain them there, flex the hand on the forearm and the forearm on the upper arm, and render movement of the entire extremity impossible by the application of a roller from wrist to shoulder. The happiest results will follow this mode of treatment. *Part xl., p. 104.*

HANGING.

Case of Hanging Successfully Treated by the Affusion of Cold Water.—This case is reported by Mr. Noyce:

It appears that the patient had been suspended at least two minutes, and respiration had ceased six minutes, before attempts at resuscitation could be made. The heart's action continued, but was very weak; pulse 80, countenance pale, conjunctiva red. Mr. N. attempted to perform artificial respiration, but the pair of bellows were so much out of order, that he could not effect his object. He then determined on the application of cold water, and describes its effects as follows:

On the first affusion I perceived a gurgling in the throat, and renewed the operation; a slight inspiration directly succeeded. The affusion was

frequently repeated, and was followed each time by an inspiration, each more perfect than the last, until the lungs were fully inflated; respiration then continued regularly, accompanied by frequent yawning and sighing. I bled him to 16 ounces, which restored him to consciousness, and he has had no bad symptoms since, excepting a severe pain at the back of the neck, which shortly passed off, and he remains quite well.

Part xiii., p. 28

Modes of Death by Hanging.—The modes of death by hanging may thus be summed up, not in the order of their frequency, but of their fatality. First, Luxation of the odontoid process of the second cervical vertebra; fracture of the spine, and consequent injury to the medulla spinalis; second, suffocation from pressure on the windpipe, producing complete obstruction to respiration; third, congestion of the brain, or apoplexy from the arrest of the return of blood from the head to the heart, the result of compression of the great bloodvessels of the neck; fourth, injury inflicted by violent and prolonged pressure on the important nerves of the neck.

Much of the success of the treatment of a case of attempted suicide by hanging will depend on the nature of the injuries inflicted, the period within which assistance is procured, and a proper discrimination in the selection of remedial measures. Thus, if the surgeon be summoned to a person within a few minutes after he has suspended himself, although the breathing may have completely stopped, yet, provided there is neither dislocation nor fracture of the vertebra, and consequent injury of the medulla spinalis, animation may, in many cases, be restored by an immediate recourse to artificial respiration. Electricity or electro-galvanism, if within reach, ought at the same time to be applied to the cardiac and spinal ganglia; if, on the other hand, the patient is cut down before respiration has ceased, and symptoms of congestion of the brain or apoplexy show present themselves, bloodletting ought at once to be resorted to. Although, as already stated, there is reason to believe that the apoplexy which results from compression of the great bloodvessels of the neck is frequently of the congestive form, yet, as we possess no infallible rule by which we can positively pronounce in these cases, whether cerebral hemorrhage has taken place or not, we should in every such case exercise as much caution in the abstraction of blood as we would in apoplexy from other causes; here, elsewhere, we should, whilst endeavoring to remove congestion, or arrest hemorrhage, ever bear in mind that the brain has suffered from a violent shock, for the repair of which the system will require its best resources.

Much difference of opinion has existed both as to the quantity of blood to be taken away in cases of apoplexy, in which bleeding is indicated, and as to the precise situation from which the blood should be abstracted. The condition of the pulse, and the effects of the withdrawal of blood on it, will be the safest guides as to the former; with regard to the latter, we generally select the temporal arteries, agreeing, as we do, with Abercrombie, who, whilst treating on the subject, says: "Much importance has been attached to bleeding from the jugular vein, as more likely to give immediate relief to the head; but we must remember that the only jugular vein that can be opened is the external jugular, which has little communication with the brain, and, consequently, bleeding from it is much inferior to bleeding from the temporal artery."

Part xxxi., p. 1

HARELIP.

Operation.—This case, upon which Dr. Houston operated, was a very troublesome one; the patient, a child two years and a half old, having a double harelip, with double fissure of the hard palate anteriorly, but only one in the soft palate. The incisor teeth were distorted. The first step was, detaching the edges of the labial fissure from the bones by an incision with a scalpel through the mucous membrane, after which the outer layer of the projecting tubercle of bone was removed by nippers, and the distorted teeth, together with the pulps of the secondary ones, were also taken away, thus making a flat surface and support for the new lip. The edges of the harelip were then pared with strong, sharp scissors; there was but little hemorrhage. The needles employed to bring the wounds together, were two long, fine, woollen or darning needles, tempered and filed at the points to the shape of glover's needles. The lower was that introduced first; the point was made to penetrate the skin on the left side, about a line above the free edge, and two lines and a half to the outside of the vertical incision. Thence it was pushed slightly upward and backward, so as to appear on the cut surface a little higher than the level of its entrance. It was then pushed through on the opposite side in a similar, but reversed order, and brought out there at a point of the skin exactly opposite to the point of entrance. The two flaps glided readily toward each other on the long, smooth needle, and when made to touch, were found to fit with every exactitude, giving to the red border a straight edge below, and forming the lip into a level surface in front. The manœuvre of raising the point of the needle during its entrance insured a firmer hold of the flesh, and, by pulling down the mucous membrane a little, added to the fullness of the lip at that part. The second needle was then introduced in a direction parallel to the first. It entered the skin close under the left nostril, passed through about half the thickness of the flesh of the lip, then traversed the central triangular piece, and came out again under the right nostril. This needle was introduced in a directly transverse course, and not in an arched direction, as practised with the preceding one; and it was not allowed to pass altogether so deeply into the substance of the lip, as by such a disposition a better seat was given to the central tubercle. A high position was selected for this needle, with the view of closing the fissure into the right nostril as far as possible. Both needles being thus laid in, a thread of silk was twisted several times, first round the upper one and then another round the lower, as in the figure of 8, and both were made subsequently to cross in the centre between the needles, so as to keep the apex of the tubercle in its place, care being taken, however, not to pull them in any degree calculated to approximate the needles to each other. It was found that, by tying the superior needle first, a better adaptation of all the parts of the complicated wound, and a neater arrangement of the red borders was accomplished, than could be by the more usual mode.

The peculiar length of the needles, by lessening their readiness to fall out of the wounds, facilitated greatly the subsequent manipulations of the dressings, and rendered unnecessary the application of a ligature in either of them until the fitting place and direction for both had been determined upon. As final steps, the projecting ends of the needles were nipped off,

little rolls of sticking-plaster were applied to their stumps, and the cheeks were drawn and held forward by adhesive straps, so as to take off all stress from the needles. No further dressings were applied. In seventy-two hours the dressings and needles were removed, when the union between the wounded surfaces was found to be complete in every part.

The palatine fissures were left untouched.

Dr. Houston afterward examines the question as to what period of life is the best fitted for the performance of an operation for the cure of harelip, and he decides in favor of the third month after birth, urging as his reasons that the parts recover themselves better than when the operation is done later in life; that the lip in due time acquires fullness and plane; the nose is prevented from assuming a spread-out, ugly appearance; the fissure in the palate, if there be any, closes greatly with the growth, supported by a firm and perfect lip; bad habits of speaking, such as nasal or guttural utterance, which, if once established, become irremediable, are avoided; and by removing such disfiguration before the child is conscious of its existence, it is spared the feelings of humiliation which the consciousness of such infirmity necessarily imparts, and which invariably gives a tone to the character of the individual. He states that he has operated on several infants of three months old, with equal success in all cases, and has never failed. Dupuytren also recommends the third month, Velpeau the first six, but if they had already passed, he has deferred operating until the tenth or fifteenth year. Sir A. Cooper advised waiting until the patient had completed the second year of existence.

Part vi., p. 13.

Operation for Harelip.—I advise you, says Mr. Liston, to defer the operation till the first set of teeth have come in, and I have seen good reason for adhering to this rule. When the operation is undertaken at an early period, there is often great difficulty; sometimes union does not take place, the parts turn out again, and the patient is rendered more deformed than in the first instance. When the features are enlarged somewhat you have more ground to work upon, you can put the parts then neatly together, and you can almost answer positively for the union taking place. I operated on a child the other day, in whom the operation had been performed twelve months ago. The parents were anxious to have it performed, but I then refused; it was done, however, but the moment the pins were removed, the lip turned out as before. You continually see patients sent back at the hospital till the proper period has arrived.

Supposing that the fissure is simple, and everything is right and proper as it regards health, the operation may be performed by a very easy process. The instruments employed are, or ought to be, exceedingly simple. Here are all sorts of complicated instruments made for holding the lip, but, depend upon it, the fingers are the best forceps.

If you have a simple fissure on which to operate, you wrap the patient well round with a table-cloth, or jack-towel, so that he cannot move. You have him held on the nurse's knee, place yourself in a good light, and fix the child's head betwixt your own knees, with his head toward you. Then, laying hold of the edge of the lip with the fingers, you enter the knife above the angle of the fissure, and carrying it downward, free from the continuation of the prolabium, you take care to remove all that portion of the lip. You pare off a considerable thickness of the parts, so

to get a broad surface to oppose to the opposite side. You enter the knife again, carry it down on the other side, and bring it out where I have done. The operation is now so far completed. You have some little bleeding, which you can arrest by the fingers, but you do not care for its instant cessation. You immediately put in the needles for the twisted suture; make two points of suture; secure them by a thick twisted thread, and cut off the ends of the pins.

If there is a double harelip, the operation must be regulated altogether by the size of the intermediate flap. In many old books, those of Heister, Benjamin Bell, etc., and even in Mr. Cooper's "First Lines," it is recommended that the operation should be performed on one side, and that one fissure being united, and the cure consolidated, many weeks or months afterward the other should be operated upon. But there is no occasion for anything of the kind; if there are two fissures, you complete the operation at once. Sometimes it is necessary to take away a portion of bone which projects forward, and pushes the flap out of its place. Before you can get the soft parts together you must detach the flap, and with a pair of cutting pliers clip away the bone, perhaps with a couple of the incisors. There are many specimens in the museum of portions so removed. In cases of bad double harelip, however, there is generally a deficiency of the bones, and that you cannot very well remedy. There is no mode of filling up the space. Sometimes the fissure of the palate runs quite forward to the fissure of the lip, and there is a great void into which you can pass the little finger between the bones of the palate. With the palate, however, I have nothing to do at present. Your object is to put the external parts neatly together. The great object is to have the prolabium straight, and all the incisions are made with that view. Both the incisions must be made of the same length to prevent puckering. You must take away the rounded portions, for if you do not, you leave an awkward-looking notch. Many patients have been operated upon for harelip in early life that had better have been left alone. I operated two or three times every year, sometimes much oftener, where the operation has been performed before. In these cases you must cut through the lip, remove the cicatrix, and put the parts handsomely together, guarding against any notch being left at the free edge of the lip. I had a young lady under my care, in the neighborhood of the hospital, two or three years ago, who had a split palate, and who had been operate upon for harelip very soon after birth. I advised her strongly to have the cicatrix cut out, and the parts again put together. She consented, and such was the change produced in her appearance, that, in some days after the operation, on stirring the fire, and rising suddenly before a mirror, she started back, not knowing herself. I advise you, when you put in your first pin, to twist your ligature upon it; do not take away the ends, but give them to an assistant to hold, and then put in the other pin. *Vide* Uses of "Collodion,"

Part x., p. 142.

Harelip.—When there is a cleft maxilla, and one of the edges of the divided alveolus projects, detach the soft parts from the bones more extensively than is usually done, and then cut through the protruding alveolus with the bone forceps, at the spot about corresponding to the space between the first and second incisors, and bend back the partially detached portion to the desired level; it will often quite fill up the gap;

then finish the operation in the usual manner. This operation should be performed before dentition, and may be safely done as soon as the child is a month old.

Part xviii., p. 16.

Proper Period of Life for Operating on Harelip.—"For my part," says Mr. B. Cooper, "I agree entirely with Sir Astley Cooper regarding it as unsafe to operate on infants before weaning: firstly, because, from their excessive irritability, they are totally unable to sustain any loss of blood; and, secondly, because, after the operation they are rendered incapable of sucking; and, indeed, Sir Astley has pointed out in his lectures the frequency of the failures he met with in his own practice in operating upon infants shortly after birth. I consider the best time, under ordinary circumstances, to be soon after the child is weaned, and then capable of receiving nourishment independently of its mother, and has overcome the distress incidental to the separation from her.

The twisted suture is, I think, preferable to the interrupted; but, for what I have seen of the practice of my colleague, Mr. Cook, I am led to consider the uninterrupted suture better than either."

Part xviii., p. 17.

Harelip—Direction given to the Knife in the Paring of the Edges.—"The operation was performed in the usual manner, with the exception of the direction given to the knife whilst the margins of the fissures were being pared. As the scalpel run straight from above downward, Mr. Ferguson made it cut slightly inward on both sides, when he reached the red portion of the lip, so as to save a little more of that portion than of the part covered by skin. This precaution is likely to remedy a defect which is generally left after the union of parts in harelip. Every surgeon has noticed the peculiar notch which the red part of the lip presents after the linear wound above it has completely united.

Part xxi., p. 36.

Harelip.—"In a complicated case of this kind, after the operation, Mr. Quain derived the most essential assistance from the supporting apparatus which has lately come into use. This encircles the head from below, and the two ends, furnished each with a pad, rest upon the cheeks, which are thereby supported in the position given them. All dragging or pressure upon the sutures is thus prevented.

Part xxvi., p. 11.

New Operation for Harelip.—"Having pared the edges, not in the usual way, but by an oblique incision from before backward, slightly to save from above to below, take two or more sutures, each armed with two needles, one at either end; introduce the needles immediately under the skin, carry them completely through the remaining thickness of the lip, and tie them firmly internally, bringing the ends of the sutures out at the angle of the mouth, to facilitate removal afterward. A few strips of adhesive plaster may be applied externally. All blemishes arising from the use of pins are thus avoided.

Part xxxv., p. 1.

HAY ASTHMA.

Hay Fever or Hay Asthma—Treatment of by Nux Vomica.—"Let drops of the tincture of the nux vomica of the Dublin Pharmacopoeia

taken for a dose, in water, and increased gradually to twenty drops, three times a day. It is an agreeable light bitter, increases the appetite, and influences the Schneiderian membrane, no doubt through the nerves. An ointment may also be applied as high up in the nostrils as possible, composed of ʒiiss. of Goulard's extract, spermaceti cerate, ʒij. and a few drops of oil of roses, or of bergamot. *Part xxii., p. 21.*

HEADACHE.

Diuresis.—Copious diuresis recommended as a revulsive, particularly in head affections of children. *Part i., p. 24.*

Nervous Headache.—Induced by anxiety, affliction, mental fatigue, etc. Half grain doses of the fresh extract of aconite, every two or three hours, recommended; the bowels having been previously opened by a mild dose of aloes and myrrh pills. *Part i., p. 71.*

Headache of Congestive Fever.—R Liquor ammoniæ, ʒj.; distilled water, ʒix.; chloride of soda, ʒv.; camphor, gr. x. M. Adding any agreeable scent. A piece of linen to be steeped, and applied over the part, carefully protecting the eyes by a thick bandage above the brows. *Vide Art. "Fever."* *Part viii., p. 22.*

Rheumatic Headache.—Against rheumatic headache Dr. Johnson has found no treatment so successful as the following: Eight grains of Dover's powder and two of calomel, at bedtime, on alternate nights, for two or three times, followed by a third part of the following mixture the next morning, to be repeated in two hours, if necessary:

Infusion of rhubarb, three ounces; tartrate of soda, three drachms; powder of rhubarb, half a drachm; tincture of senna, half an ounce; wine of colchicum, a drachm and a half. Mix. *Part viii., p. 27.*

Nervous Headache.—The strong aqua or liquor ammoniæ, taken internally, will be found to be a most valuable remedy in many cases of neuralgic suffering about the face and head, odontalgia, severe nervous headache, etc. The best mode of administering it is to mix from 20 to 40 drops in a cupful of very thick gruel, and to take this at bedtime, or whenever the paroxysm of pain is present. The ammonia must be well blended with the gruel, else it will irritate very painfully the inside of the mouth and throat. It should produce a profuse salivation and lachrymation. In very severe or obstinate cases, it may be applied outwardly at the same time. *Part ix., p. 34.*

Intermittent Headache—Sulphate of Bebeerine.—Dr. Gairdner stated that he had recently been very successful in treating a case of intermittent headache with the sulphate of bebeerine. The subject was a young and recently married lady. There were some reasons to suspect that she might be pregnant. The fits of pain were of daily recurrence, and came on nearly at the same time. The pain when at its greatest height was excruciating. The paroxysm was succeeded by an interval of total exemption from pain. He ordered pills containing three grains of sulphate of bebeerine in each. Of these, she took three, sometimes four, each day, in the intervals between the paroxysms, with the effect of immediately

diminishing the pain, and putting an end to the disease in about three or four days. *Part xii., p. 4.*

Certain forms of Headache in Females.—[There is a form of headache frequently met with in females, during the menstrual periods, and attacking mostly the left side of the head:]

The pain, says Dr. Murphy, is intermittent, shooting, and lancinating; may be fixed for days, and is most severe at the temple (when it is termed *clavus hystericus*), and next at the parietal protuberance and occiput. It proceeds from the sub-occipital nerve, and, if the exit of the nerve is pressed upon, pain more or less severe is complained of, extending along the whole course or at certain sites only of the nerve—as at the temple, nape of the neck, parietal protuberance, etc.: it is usually increased during the menstrual period, and is generally a complaint of unmarried females between the 33d and 36th years of life, and is indubitably a form of hysteria. The menses are usually profuse or difficult, the bladder irritable, and there are ill-defined painful sensations about the pelvis; other form of neuralgia often co-exist. The irritation of the sub-occipital nerve may be traced to the ovaries, being only present where these exist, and when capable of fulfilling the function of menstruation; and our treatment may be primarily directed to remove any congestion or irritation of the peculiar organs, and secondarily to lessen the pain of the nerves. The author advises the daily use of hip-baths or sea-bathing, where possible; attention to prevent accumulations in the rectum; abstinence from stimulants; mental employment; inf. valerian. & digitalis, with pills of *assa-fetida*; occasionally general or only local bleeding; and when the fail, a gentle mercurial action, the cold bath being, during the treatment, omitted. As local means, he recommends belladonna plasters, ventricointment, sinapisms, or blistering. Where, however, the patient is exhausted by leucorrhœa or profuse menstruation, with symptoms of chronic inflammation of the womb or ovaries, the treatment becomes more doubtful; but the author prefers the trial of a tonic treatment, and advises the exhibition of the valerianate of zinc and quinine, as especially efficacious, and the sulphate of iron in infusion of valerian when there are evidences of confirmed chlorosis.

This headache may be termed the *nervous* headache: it also assumes another form, which may be termed the *cutaneous* headache, and is the *hemicrania* of our forefathers: it seems to be located in the integument of one-half—usually the left side—of the head, which is so exquisitely sensible as scarcely to bear the least touch of the finger, and the pain never passes the mesial line.

Another form of headache is that arising from deficiency of blood within the cranium, and coming on after hemorrhages, exhausting discharges, or any other debilitating causes; the best examples occur in chlorosis. It is increased by the erect, diminished by the recumbent posture; is not a very painful form, but is often attended with impaired vision: its cause may be traced to diminished muscular power of the heart, which palpitates on slight exertion: there is also dyspnoea, pale face, and other symptoms of a feeble circulation, with a sinking pain at the epigastrium, and craving appetite. If the true cause of this headache is mistaken, and depletion used, paralysis has been known to supervene, but if the debility is removed, the muscular power of the heart is easily increased; and

most useful remedies are, steel by itself or combined with quina, full diet, and the recumbent posture.

Another form of headache alluded to by the author, arises from excess of blood, and may exist as a passive or congestive, or as an active or inflammatory state. The former, arising from the various known causes of congestion, is diagnosed by the constant heavy pain at the anterior part of the head, increased by the recumbent posture, sense of chilliness, slow feeble pulse, tendency to vomiting, and pain in the lumbar region, caused by congestion of the spinal cord. It is a dangerous form of headache, and has in the depressing diseases proved in a few hours fatal, but in other cases, has lasted weeks without much mischief. The treatment should be to induce reaction as soon as possible by the warm-bath or an emetic. The author deprecated the usual attempts to arrest vomiting during the invasion of fevers. If the headache persists, with hot skin, *leeches to the inner nares* will be found of value; applied to the temple, they debilitate without relieving this pain of the head, and they are altogether inadmissible when this coexists with typhus or scarlatina. Blisters may also be applied, and diaphoresis produced by the usual means; cold applications to the head the author considered useless, and even likely to increase congestion. Care was also requisite that mere congestion should not by the use of stimuli be forced into inflammation, which is the next stage if resolution or fatal termination does not take place. The author regarded idiopathic phrenitis as a most rare disease, and hydrocephalus acutus as congestion, not inflammation. Phrenitis was well marked by the tensive pain increased on stooping, by the bright eye, hot skin, nausea, and vomiting, tendency to delirium, and occasional twitching of the muscles of the face; the most active antiphlogistic measures should be used.

There were other forms of headache easy of diagnosis, but of these the author would only mention the constant pain of head in children, with emaciation and want of sleep, and which diagnosed tubercles of the brain. The headache of pregnant females referred to the centre of the head, and attended with a remarkably slow pulse, and in which, if bleeding is neglected, convulsions, abortions, and too often death, are apt to supervene; and lastly, the pain of the head occurring after a night's debauch, the cause of which, whether in the stomach or affected organ, the author considered not to have been sufficiently investigated.

Part xvii., p. 279.

Headache—Intermittent.—In intermittent headaches, brow ague, cephalalgia, and other affections in which the mucous membrane of the frontal sinuses appears to be the seat of pain, arsenic has proved efficacious.

Part xxiv., p. 30.

Headache.—Give doses of half a grain to one grain, three times a day, of the sulphate of nickel. This remedy seems to have been a very valuable one in the hands of Dr. Simpson, of Edinburgh. It seem to be of use in those cases in which iron has been employed, especially in chlorosis and amenorrhœa.

Part xxvi., p. 338.

Periodical Headache.—Use sulphate of nickel as above.

Part xxvii., p. 340.

Congestive Headache.—Simple congestive headache and other painful affections of the head may be relieved by what is called "traction," or dry

cupping. The spine, and if necessary, the whole back, is smeared with spermaceti ointment. The cupping glass is then exhausted and fixed on any given spot; it moves with facility over the anointed surface, acting powerfully as it goes along. This is very useful in hysterical headache.

Neuralgic and Hysterical Headache generally depends on subacute ovaritis, and attacks the *left* side of the scalp, shooting from the neck to forehead and not vice versa, as in odontalgia. Use the following remedies according to circumstances: open the bowels well and regularly; use the cold hip-bath or sea bathing; a sinapism or blister to the back of the neck; belladonna plaster with a little opium in it. Tonics, as quinine in infusion of valerian; valerianate of zinc, half a grain three times a day with one drop of creasote; sulphate of iron combined with valerian and ammonia, or the ammoniated tincture of valerian; morphine in doses of one-sixth or one-quarter of a grain to relieve the pain, if other remedies fail.

Part xxix., p. 310.

Cephalalgia.—This often comes on from any exposure of the head to cold air, and is then generally removed by a cup of strong coffee, or a dose of the hydrochlorate of morphia. If these fail when given separately, they will frequently effect an immediate cessation of the pain when given in combination.

Part xxxiv., p. 36.

Nervous Headache.—To relieve the immediate distressing pain, anodynes are required. If opium or its alkaloid cannot be resorted to, there are other efficient anodynes which may be appealed to. Of these, acetate is most to be relied on, from one to two minims of Fleming's tincture may be given and repeated every two or three hours if necessary. In some cases, the effect is marvellous. The action of chloroform in this particular is too transitory to be of any avail. There are also other agents which might be called nervines, as valerian, and amongst dietetic means, tea and coffee, which are particularly applicable when the headache is the result of fatigue, mental or bodily. Of tonics to exalt the nervous tone of the system, quinine and arsenic are by far the best; iron being also added when there is an obvious deficiency in the red corpuscles of the blood. It is in that form of headache which comes on in distinct paroxysms at regular intervals that arsenic is of most value; it should be given in small doses and for a lengthened period. Perhaps next in value to quinine and arsenic, comes zinc, of which the valerianate is the most eligible preparation, but it is usually given in doses far too small; six grains are often productive of much relief, and cause no ill effects.

Part xxxvii., p. 216.

HEMATOCELE.

Hematocle of the Thyroid Gland—Treatment by Free Incision—Cure.—[Mr. Bickersteth was consulted on the 27th Sept., by Mrs. M. regarding a tumor resembling a large bronchocele, extending from the top of the sternum to the top of the larynx. It was smooth and fluctuating and the integuments very thin over the most prominent portion. It had existed three years; but latterly the breathing had become much oppressed. The fluid, of a thin dark appearance, was drawn off by

trocar and canula, to the great relief of the patient. On the 4th of October, however, she returned, with the symptoms more aggravated, and the tumor larger; the fluctuation being quite as distinct as before. Mr. Bickerseth proceeds:]

From the consideration of the circumstance that the tumor was composed of a single cyst, and that its contents were entirely fluid, as apparently proved by the former tapping, admitting consequently, of complete evacuation, I thought that injection with tincture of iodine, after the sac had been completely emptied, would afford a reasonable prospect of inducing its obliteration; and I was further encouraged to attempt this treatment by the recollection, that even if it should fail, no obstacle would be presented to the more severe measure of laying the cavity freely open.

Three drachms of the pure tincture of iodine were placed in a glass syringe, and I prepared to inject, having first emptied the cyst as far as possible. About four ounces of dark fluid blood, much thicker and more tarry than upon the last occasion, passed freely through the canula, and the swelling was removed as effectually as before. But now florid blood began to ooze very rapidly, and continued to do so in spite of the means used to check it. On this account the injection was discarded, for I feared the free hemorrhage would prevent the tincture from coming into contact with the walls of the cyst, and thus fail in producing the requisite degree of inflammation; moreover, I did not like the consequences of mixing tincture of iodine with fresh blood in the interior of a cyst occupying this situation. The canula was therefore withdrawn, and perhaps it was as well, for within five minutes the tumor was almost as large as ever. Still the relief to her immediate distress was considerable, and by her request a short delay was granted, before proceeding to more radical treatment.

October 8th.—She is now earnestly desirous that something should be done immediately to relieve her. The breathing is more laborious than ever. The inspiration prolonged, and performed with considerable effort. Each attempt is accompanied by a peculiar crowing sound. The tumor is very firm and tense; and the skin is ecchymosed over the whole of the neck and chest. The patient being seated upon a chair, with the head thrown back, and supported by an assistant, I introduced a sharp-pointed bistoury into the most prominent part of the tumor, a little to right of the mesial line, and having opened the cyst, I enlarged the wound downward to the extent of about two inches, by means of a curved probe-pointed bistoury. I now ascertained that the cyst was of much greater size than I had previously imagined. It passed downward and backward deeply into the root of the neck, behind the sternum and in front of the trachea, further than my finger would reach; and from this part I was able to turn out large clots of dark solid blood. Hitherto there had been very little hemorrhage; but in order to treat the case effectually, it appeared necessary to make the external opening still larger, for as yet, not more than one-third of the known extent of the cavity had been opened. But at the lower part its depth from the surface greatly increased, and a considerable portion of the substance of the thyroid was evidently placed before it, so that by cutting in this direction, the danger of wounding important vessels was great in proportion. Using my knife in the same manner, I again extended the incision to within half an inch of the top of the sternum, and

thus laid open the cyst as freely as it was possible. Even then I could not find the bottom of the cavity. The hemorrhage from this last incision was very profuse; the blood spouted in every direction as from a sponge, and proceeded manifestly from the divided walls of the thyroid. After the loss of a few seconds spent in a vain endeavor to secure the vessels by ligature, the cavity was stuffed with lint till the cut surfaces were widely distended, and then, by drawing a few straps of adhesive plaster from side to side, a uniform and steady pressure was secured, which immediately and effectually checked all further bleeding.

The future progress of the case has in all respects been most satisfactory. Not a single unfavorable symptom occurred. On the third day discharge from the wound commenced, and part of the lint came away, and at each succeeding dressing a portion separated, until on the eighth day the whole had been discharged. Then the cavity began to contract, and the swelling and discharge to decrease. At the same time the margins of the wound approximated, and showed so great a tendency to unite that it was necessary every second or third day to introduce my finger in order to keep the opening patent until the obliteration of the cyst was complete, etc. To hasten the process, I directed a blister to be applied, and with most beneficial results. The discharge became thin, and of small amount. The edges of the incision puckered in, and have now (five weeks after the operation) all but closed, forming a deep furrow, with the divided lobes of the thyroid on either side. The breathing has continued perfectly free, and the voice also is slowly recovering its natural tone and force.

The perfect relief afforded by this treatment to the most urgent and distressing symptoms was most gratifying, and the simplicity of the operation, together with the absence of any unfavorable occurrence, is highly encouraging for future guidance.

The real, as compared with the apparent size of the cyst—its extension downward so much further than was indicated by external examination—its partially solid contents, when fluid alone was discovered with the trocar, and every reason existed for supposing that none other was present—are facts not to be forgotten, and must always more or less influence our diagnosis, until an actual exploration with the finger has been effected. It may be remembered also with advantage how utterly useless in the wounded thyroid the ordinary method of securing the vessels by ligature proved, and how easily profuse arterial hemorrhage was stopped by continued pressure.

Part xxvii., p. 256.

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HEMICRANIA.

Treatment of Hemicrania and Tic Douloureux by Cauterizing the Palate.—In the most intense hemicrania, and in the most obstinate tic douloureux, whether fronto-facial or temporo-facial, the pain disappears instantaneously on the application of ammonia at 25 degrees, to the palatine arch, by means of a (camel's hair) brush; the brush being allowed to remain on the part till a copious flow of tears has been excited.

M. Ducros has tried this in a great number of cases, and the pain has always ceased. If the pain returns, a fresh application again produces cessation of the neuralgia.

Part viii., p. 156.

Citrate of Caffeine in Hemicrania.—Dr. Hannon advocates very strenuously the use of the above salt in hemicrania. It is to be given in doses varying from five grains to one drachm. *Part xxii., p. 86.*

New Remedy in Hemicrania.—Dr. Jung stated at the Berlin Society of Medicine, that in the neuralgic pains known by the term migraine, or hemicrania, and especially when the infra-orbital nerve is affected, he has found the aspiration of the following mixture an almost infallible remedy.

Dissolve four grains of acetate of morphia in a few drops of acetic acid, and add ʒiiss. of laurel water and 10 drops of prussic acid. Of this mixture 10 drops (or in very excitable persons five) are to be mixed with an equal quantity of water, and strongly aspired by the nostril corresponding to the side of the pain, keeping the other closed. The relief is immediate; but the existence of coryza is a contra-indication to the employment of the remedy. *Part xxxvii., p. 259.*

Chloroform in Hemicrania.—*Vide Art. "Chloroform."*

Use of Ether in Capsules.—Recommended in hemicrania. *Vide Art. "Ether."*

HEART.

Hypertrophy of the Heart.—The cautious administration of small doses of extract of *conium* suggested. *Part i., p. 59.*

Use of Sulphur in some Spasmodic Affections, particularly in Angina Pectoris.—[Dr. Munk was first led to notice the effects of this remedy in a gentleman whom he was attending for a different disease, and who was attacked with angina pectoris toward the termination of the attendance. Dr. Munk, on taking leave, advised the sulphur to be taken regularly as a laxative, without any view of curing him of his accustomed attacks of angina pectoris, to which he was very liable.]

Some months after this [says Dr. M.], when in attendance upon a member of his family, I inquired concerning the attacks, and was informed that there had been no return of them. He had also remained free from hemorrhoids, and had kept the bowels gently relaxed by sulphur, a drachm of which in milk he swallowed every night on going to rest.

In consequence of the disagreeable odor of the perspiration, arising from its continued use, the confection of cassia was substituted for it. Six weeks after this he had a severe attack of angina, another in about a month, and again, for a third time, after an interval of seven weeks. Attributing the relapse to the electuary, he of himself again had recourse to sulphur. The bowels were kept by it rather more open than by the cassia; and, for a considerable period, he continued free from the paroxysms. In the autumn of 1838, owing to the heat of the weather, and the consequent increase of his perspiration and its disagreeable concomitant, the sulphureous odor, he once more discontinued its employment, taking now, in its stead, small quantities of castor oil, or of the compound rhubarb powder of the Edinburgh Pharmacopœia. Again did the paroxysms return, and for a third time did they cease with a recurrence to the employment of sulphur. This medicine he continued during the whole of the winter, without any return of the complaint.

Dr. Munk was still unable to account for the *modus operandi* of the drug until he met with Dr. Chapman's "Elements of Therapeutics," in which work it was asserted that sulphur, even when applied topically in the form of powder to any part affected with spasm, cramps in the muscles, stomach, etc., had a decidedly good effect. Dr. Munk found this to be the case, in a case of the latter disease.

Part iii., p. 78.

Functional Derangement of the Heart in Growing Persons.—In reference to the diagnosis of such cases, Dr. Corrigan says:

It is, I believe, as a general rule in such cases, safer and better to judge of the strength of the heart by the force of the blood impelled by it than by any indication of its state supposed to be furnished by auscultation of its action. It is, I believe, also more rational to judge of the power with which the organ acts (except in obstructions of its orifices), by feeling the force of the fluid sent out by it along the main trunks, than by drawing an opinion from degrees of intensity of sounds and impulse, on which perhaps, no two observers will agree. It is more reasonable to judge of the strength of the action by the momentum of the propulsion than by the recoil of the organ, or the noise of its action.

There is in some of those cases a curious circumstance observable; the boy who cannot run or walk a hundred yards without palpitation, will swim for a very long time without being in the least incommoded by the action of the heart, probably from the spinal muscles not being disturbed with the weight of the trunk in the latter exercise; but whatever the cause, the occurrence is useful as an aid to our diagnosis.

The treatment consists in diminishing the nervous irritability of the patient, and in restoring the tone to the constitution, by sea air, sea bathing, and full diet, with the different preparations of iron.

In one case the patient was given three drops of hydrocyanic acid every night in ℥j. mist. camph. and half a grain of sulph. quin. ter in die. The palpitations were rapidly relieved, but not removed. He was put upon full diet and wine, and in the course of the summer he recovered; the palpitations gradually wearing out.

Part iii., p. 88.

Sounds of the Heart.—M. Cruveilhier publishes his own observations of an infant born with its heart completely exposed and protruding through an aperture in the thorax; it lived twenty-four hours after its birth. He found only two conditions of the heart, viz., contraction and dilatation; that of repose generally mentioned by authors was completely wanting. During their systole, the parietes of the ventricles became pale, their surface rugged and in folds, and the fleshy colors more marked. "The two sounds of the heart have their seat at the origin of the pulmonary and aortic arteries, and their cause is the flapping (*cliquement*) of the sigmoid valves. The first sound which coincides with the ventricular systole, and with the dilatation of the arteries, is the result of replacing (*redressement*) of the sigmoid valves, previously lowered. That the second sound, which coincides with the ventricular systole and with the contraction of the arteries, is the result of the lowering of the sigmoid valves, pushed down by the reflux of the retrograde blood."

Part iv., p. 136.

Sounds of the Heart.—Dr. Watson says:

The sounds which we hear are two. One of them coincides, in point of time, with the impulse; and barely precedes the beat of the radial

artery. It happens, therefore, when the ventricles contract; during the systole. It is accordingly called the *first* sound of the heart, or the *systolic* sound. The other of the two sounds coincides with the diastole, and is spoken of as the *diastolic* or *second* sound. It takes place at the instant when the heart reverts to that place and condition in which it had been prior to the systolic movement. These two sounds occur in quick and regular succession, and then follows an interval of silence, after which the two sounds are repeated; and so on.

The two sounds are not, however, exactly alike. They differ, somewhat, both in quality and duration. The first is a dull, prolonged noise; the second a shorter and smarter sound, having more of a clacking or flapping character.

The natural sounds which I have been describing are liable to be changed or modified by disease. Either sound, or both, may be accompanied by a noise, which, in its commonest type, very closely resembles that produced by the blowing of a pair of bellows. Four persons out of five, I should think, if asked what this sound resembled, when they heard it accompanying each systolic movement of the heart, would say that it was exactly like the repeated blowing of bellows in an adjoining room. It is called accordingly, by the French, the "*bruit de soufflet*;" and in homely English, a *bellows sound*. These sounds are often denominated *murmurs*.

The blowing sound may be occasioned by any change which alters the due proportion between the chambers of the heart and their orifices of communication with each other, and with the blood-vessels that respectively enter or leave them; it may also be occasioned by a preternatural velocity in the passage of the blood through a healthy and well-adjusted heart. If one of its orifices—say the aortic orifice—be narrowed, by disease of the valves, or in any other way, the blood will not, as before, glide through it smoothly and without noise, but will yield that sound which we call a bellows sound. So, also, if the orifice retain its natural dimensions, but the capacity of the cavity from which the blood is driven be augmented. Nay, the same blowing sound may be produced though the cavities and orifices be all healthy, and duly proportioned to each other, if the velocity of the circulating blood be increased beyond a certain measure. If you bear this explanation in mind, it will be found applicable, I think, to almost every case in which there is a blowing sound accompanying the *systole* of the organ. If, at the same time, the valves over which the blood must pass be rigid, or rough, or even loose and vibrating, these circumstances may modify the blowing sound, and render it louder, or hoarser than it would otherwise be, and justify the applications of *bruit de scie*, and *bruit de râpe*.

But this explanation applies to a *systolic* blowing sound only. What are we to say when there is a similar sound attending the diastolic movement of the heart? Why a diastolic bellows sound will mostly, if not always, be found to accompany and denote some organic disease affecting the valves of the heart. Thus, if the mitral valve be converted, as it often is, from a loose flapping valve into a bony and rigid unvarying chink, the blood which passes through it from the auricle to the ventricle, during the diastole, may cause a rushing or blowing sound. On the other hand, the reflux of blood through the unshut mitral orifice, during the ventricular contraction, may also be attended (though it seldom is) with an audible

noise; and thus we have another source of a *systolic* murmur. Again, the aortic valves are imperfect, as they often are, and do not effectually close that vessel, blood will regurgitate through them during the diastole and produce a bellows sound. That this is the true explanation of the diastolic murmurs, I am convinced both by the observation of disease, and by the results of experiments on animals. In some of Dr. Hope's experiments, which he was good enough to allow me to witness, the sharp clack of the diastole was at first distinctly audible; then hooks were introduced, so as to prevent the perfect closure of the sigmoid valves during the diastole, and then the short smart clack was converted into a prolonged bellows murmur; and upon letting them go again, the short smart clack recurred. And I have repeatedly predicted, and found true, disease of the sigmoid valves as prevented their proper function—that of shutting out the blood in the aorta from reëntering the ventricle—I have repeatedly predicted that morbid condition when I met with a certain kind of diastolic bellows sound during life, and have found it, and justified the prediction after death.

[In another lecture Dr. Watson makes some valuable observations on valvular disease. It being ascertained by the *bellows* sound that valvular disease exists *somewhere*, can we fix on the particular valve implicated? This may often be done.]

When a bellows sound accompanies the systole, it must be caused by a current passing out of a ventricle. But serious disease of the valve sufficient to occasion a murmur, on the right side of the heart, is very rare. In nineteen cases out of twenty, valvular murmurs belong to the left side; so that practically the distinction lies, almost always between two orifices, the mitral and aortic, the inlet and the outlet of the left ventricle. The natural inlet has become an outlet also; or the natural outlet obstructed. Now, if the sound be heard at the base of the heart, as along the track of the thoracic aorta, up toward the right clavicle, as even in the carotids; and if it be less audible toward the apex, and if the pulse be steady and regular, the mischief is seated in the semilunar valve of the aorta; there is some obstacle which produces a ripple in the onward stream of the blood.

On the other hand, if the pulse be irregular, and if the sound is heard better toward the apex of the organ, on the left, it is owing to the regurgitation through a diseased *mitral* valve. Such regurgitation is often attended with a purring thrill.

When, what scarcely ever happens, the sound does result from injury of the semilunar valves of the pulmonary artery, it is heard plainest in the track of that vessel, up toward the *left* clavicle. So, also, a murmur produced by change in the tricuspid valve would be loudest toward the apex, on the right. The arterial pulse, for obvious reasons, is but little influenced by disease affecting the orifices of the right heart.

Again, if the morbid sound be diastolic, it accompanies the entrance of blood *into* a ventricle; and for similar reasons as before, the fault is most probably in the *left* ventricle. It may be owing to the direct, or impeded passage of the blood from the left auricle through a narrow mitral orifice: yet this *very* seldom occasions any audible noise. Or the diastolic murmur may proceed from regurgitation through the defective aortic valves; the natural outlet having become an inlet also; and this is exceedingly common. We attend, as before, to the situation and the

track in which the sound is the loudest. We listen also for the smart clack of the natural second sound; and if it is not to be heard, or is very indistinct, we have, in that circumstance, corroborative evidence of an imperfect aortic floodgate. Moreover, we are again assisted by the pulse. The pulse of aortic regurgitation is very striking and peculiar; sudden, like the blow of a hammer, without any prolonged swell of the artery. It always reminds me of the well-known chemical toy, formed by including a small quantity of liquid in a glass tube, exhausted of air, and hermetically sealed. On reversing the tube, the liquid falls from one end of it to the other with a hard, short knock, as if it were a mass of lead. The sensation given to the finger by the pulse, when there is much regurgitation through the aortic valves, is very similar to this. It is as if successive balls of blood were suddenly shot along under the finger. Dr. Hope calls this pulse a *jerk* pulse; the pulse of unfilled arteries. And this abrupt pulse makes itself *visible* in the arteries; the wave of blood lifts, and moves, and sometimes contorts the vessel. When this kind of pulse occurs with a diastolic bellows-sound, heard in the track of the aorta, and the short clack of the second sound is absent or diminished, you may be quite sure that the aortic orifice is patulous during the diastole. The reflux of the blood, when the patency is great, is strong enough sometimes to produce a palpable shock or jog, called the diastolic impulse. And this refilling of the ventricle from the artery may even provoke it to a supernumerary contraction.

Part v., p. 13.

Rheumatic Heart Affection.—Dr. Todd remarks: Any change in the character of the pulse, the occurrence of intermissions in it, a sudden diminution or increase in its frequency or force, an irregularity in its rhythm, ought at once to awaken the suspicions of the physician as regards inflammation, either within, or on the surface of the heart. Above all, he should be most careful in his endeavors to detect the first indications of a change of structure on the outer or inner surface of the heart, as denoted by the presence of a friction-sound, or a bellows-sound. The occurrence of any of these signs is, in my judgment, a sufficient warrant to justify his having immediate recourse to local bleeding over the cardiac region. A large number of leeches should be at once applied; or a good quantity of blood should be taken by cupping. I have no doubt that by prompt practice of this kind, inflammation of the heart may be checked at its commencement.

My experience leads me to value very lightly the efficacy of general bleeding in inflammation of the heart. I have never seen an instance in which it unequivocally did good.

Immediately after local bleeding, a large blister should be applied, not exactly over the cardiac region, but a little to the right of it, in order to allow space for the application of more leeches if necessary. The blistered part should be afterward dressed with mercurial ointment, the cuticle having been previously freely removed, so as to expose a large surface, from which an abundant secretion may be provoked. If there be much irritability, opium should be freely administered; and, if a friction sound or a bellows sound be present to indicate that the products of inflammation have already begun to be formed, then mercury, combined with opium, should be given in doses sufficient to get the system under

its influence as quickly as may be done without depressing the patient too much. There is a twofold object in administering mercury under these circumstances; first, to check the effusion of lymph; and, secondly, to promote the absorption of that which has been already poured out. When these constitutional effects of mercury can be quickly induced, these important objects will generally be attained.

It appears to me that there are two states in which, although inflammation exists, mercury is slow to produce its constitutional effects. The first of these is when the fever is of a highly irritative character, the nervous system being in a state of excitement or "alarm;" this occasionally happens in pericarditis, and may be brought on by the too frequent use of the lancet. Mercury is almost inadmissible in such cases, for it increases the general irritability; if administered, it should be given sparingly and conjoined with opium in large doses. The second is, when a very extensive inflammation exists; under these circumstances mercury appears to to act as opium does in certain diseases; in tetanus, for instance, what enormous doses of this drug will be borne with little or no apparent narcotic effect! What large doses of opium may be given in rheumatic fever itself! Such quantities could not at all be borne by the system in health. In pneumonia we give tartar emetic freely; it acts favorably upon the pulmonary disease, without perceptible effect beyond the resolution of the pneumonic inflammation; yet if we gave as much to a person in health, nausea and vomiting would immediately ensue. Tonics likewise may at times be given to an enormous extent without any exciting effect on the system; and so also with stimulants, a man in typhus fever may take with impunity in a short time, as much wine and brandy as would intoxicate him in a state of health. I believe the same principle holds with respect to mercury; and that in some cases it acts wholly on the diseased organ and produces none of its usual constitutional effects. We are not to infer that in such cases mercury does no good, and is inadmissible; on the contrary, if no untoward effect is produced, we should persevere with the use of it, even after the more acute symptoms have subsided. The rate of action of the mercury may even assist us in forming an opinion as to the extent of the inflammation, a tardy action indicating that it occupies a considerable surface; and it may also aid our prognosis, for the appearance of the affection of the mouth within a moderate time (two or three days) augurs well, whilst a difficulty in producing ptyalism must be considered inauspicious.

Part ix., p. 47.

Digitalis in Certain Diseases of the Heart.—Agreeing fully in the power which digitalis possesses of diminishing the frequency of the heart's action, and the salutary influence which it consequently exerts over many of its diseases, the author wishes to show that in all those diseases this influence is not the same; in some instances the use of this agent being injurious rather than beneficial. Thus, for example, as had been previously pointed out by Dr. Corrigan, in cases of patency of the aortic valves.

The operation of this influence is thus explained by Dr. Henderson: Patency of the aortic opening, at that period when the ventricles are being filled, necessarily admits of regurgitation from the aorta, the effects of which are an overloading of the left ventricle, and gradually an enlargement of it. Such being the tendency and issue of the overloaded condition

of the organ which results from this regurgitation, it will be granted that whatever increases the amount of the regurgitation must accelerate the progress of the enlargement. That the less frequently the heart beats the greater will be the opportunity for this regurgitation, is sufficiently obvious; and hence it is that the prolonged employment of digitalis cannot but be injurious when the aortic valves are not competent for their office. On the other hand, the most favorable results are found to follow the use of this drug in disease affecting the mitral valves. Disease of these valves gives rise to one of two effects, or to both at the same time, viz., obstruction to the flow of blood from the left auricle to its corresponding ventricle, or to regurgitation of the same fluid from the ventricle to the auricle. When either of these occurrences amounts to a considerable degree, and is of long continuance, hypertrophy of the right ventricle supervenes, and then it is that the sufferings from dyspnoea are developed, and that dropsical effusions take place.

Part ix., p. 92.

Enlargement of the Heart, connected with Incompetency of the Aortic Valves.—There is one disease of the heart in which Dr. Henderson has shown that digitalis must be highly prejudicial, viz., a patency of the aortic opening. When this disease exists, the blood will necessarily be regurgitated into the left ventricle, and ultimately produce enlargement of its cavity; so that under the influence of digitalis the ventricle will act less powerfully to empty itself of its contents, regurgitation will be more complete, and the cavity will consequently be habitually distended and eventually permanently enlarged. These are the views of Dr. Corrigan, as well as of Dr. Henderson. It is well, therefore, whenever we suspect incompetency of the aortic valves, to avoid giving digitalis, or doing anything which may diminish the capability of the ventricle to empty itself regularly of its contents. Digitalis, according to Dr. Corrigan, will be found to aggravate the sufferings of the patient; "his oppression will become greater, the action of the heart more labored, the pulse intermittent, general congestion and dropsy will be increased, and in some instances bronchitis from congestion, have been induced; and the respiration becomes more laborious." This opinion, however, is not always correct, if we may judge from facts, although it is a view which ought always to be remembered in the treatment of this disease, as we are persuaded that the too common and indiscriminate use of repeated blood-letting, spare diet and digitalis for heart disease is a very improper practice, some of these cases requiring a treatment exactly opposite.

"One case may be mentioned, out of many that occurred, showing the bad effects of debilitating treatment on the disease before us, and exemplifying the evil of acting as if one principle were sufficient for guiding us in the treatment of all heart diseases. The treatment ordered was in accordance with that generally recommended, consisting of repeated small bleedings, blistering, the exhibition of digitalis, and the most rigid regulation of diet, a total abstinence from animal food, and even a spare allowance of vegetables and milk. At the time the patient, a young man, was put under this treatment, he was not in an alarming state; but the disease being recognized as heart disease, he had the fortitude to submit to a course which he was led to expect held out a prospect of cure. Bleeding after bleeding, and blister after blister, were repeated, starvation enforced, and digitalis exhibited, until the patient was reduced to such weakness that he

had scarcely strength to raise himself in bed. The local disease was at this time, however, growing worse; for the palpitation, cough, etc., went from the slightest cause increased to a greater violence than previous to the commencement of the treatment. The plan was, nevertheless, persevered in, until the patient's death being supposed at hand, this debilitating treatment was discontinued. From that hour the patient got better; as his muscular strength returned, the embarrassment of breathing, palpitation, cough, etc., became less and less urgent. The patient is still alive the disease is still present; but with full living and good air, he is able not only to take considerable exercise, but even to undergo the fatigue of a business that constantly requires very laborious exertion." *Part I., p. 5.*

Effect of Alkalies in preventing Heart Disease in Rheumatism.—

In connection with diseases of the heart, we may allude to some recent opinions on gout, which is so often the cause of some of these affections. We are indebted to Mr. Ure for many useful observations on this subject. His remarks on the utility of the benzoic preparations in controlling phosphatic deposition have been alluded to. In another paper he shows that, from the experiments of Frommherz and Gugert, for some time before a fit of gout the urine contains no uric acid; whereas at other times it is well known that there is a superabundance. The uric acid, therefore, is picked up, and circulates with the blood, forming urate of soda through the medium of the serum of the blood; and the salt, by thus intermixing with the blood, is supposed to cause many of the phenomena of this disease. Dr. Furnivall, in a paper which he has written on the effect of alkalies in this affection, asserts that he has long been in the habit of averting the effects of gout on the heart by these remedies, but offers no further explanation of their action than that they correct the acidity of the blood, which is often found to exist in these cases. The blood in health is found to be slightly alkaline. Any acidity, therefore, will be stimulating to the heart and blood vessels; and when this is connected with another fact, viz. the increase of fibrin, which Andral proves to exist in the blood during an attack of rheumatism, we have two circumstances which must strongly tend to excite inflammatory action in the serous membranes of the cardiac ventricles, and of the left ventricle in particular. With these views Dr. Furnivall has used alkalies extensively in these cases since 1830. He prefers the liquor or carbonas potassæ, and continues the use of this medicine till all acid diathesis ceases to exist.

Mr. Ure suggests another mode of treatment which may be combined with the use of alkalies. It has often been noticed that when the uric acid increases, the secretion of bile decreases, and *vice versa*. For this reason all those remedies which cause an increased secretion of the bile are beneficial in diminishing more or less the uric acid diathesis. This he asserts to be the particular effect of *sulphate of manganese*, which M. Guélin has shown, by injection into the blood vessels, to augment the biliary secretion so much as to produce a deep yellow staining of the coats of the intestines and of the great vessels in the vicinity. Mr. Ure recommends that a drachm of this sulphate be dissolved in about half a pint of water and swallowed before breakfast. It will be followed by one or more liquid stools of a biliary description, and does not occasion those lowering and distressing effects which occasionally follow the exhibition of calomel and antimony.

Part I., p. 6.

Characters of the Pulse in Diseases of the Heart.—In contraction of the aortic orifice, the pulse is regular and preserves its natural strength and fullness, unless the obstruction be extreme, when it becomes small, weak, and, in some rare cases, intermittent. In the regurgitant lesion of the aortic orifice, the pulse is almost pathognomonic of the disease: it is regular, but jerking and receding, and the pulsation of the arteries is visible. This depends upon these vessels being incompletely filled, owing to a portion of the blood transmitted by the systole of the left ventricle returning into the ventricle during its diastole. In addition, in this valvular lesion, the radial pulse follows the ventricular contraction at a somewhat longer interval than in the healthy heart. These characters of the pulse will be better marked when the left ventricle is, in addition, hypertrophied and dilated.

Part x., p. 63.

Prognosis of Valvular Heart Disease.—Dr. Bellingham says: The prognosis in valvular disease depends upon a variety of circumstances—as, for instance, the particular valve engaged, the nature and amount of the lesion, the age of the patient, and the condition of his health, the length of time which the disease has lasted, its rapid or slow progress, the alterations of other parts of the heart, or of other organs with which it is complicated, and the profession, occupation, and habits of the patient. Valvular disease, if not extensive, and if uncomplicated with hypertrophy or dilatation of the ventricles, or congestion of the lungs or other organs, does not, by itself, necessarily shorten or destroy life. Many individuals whose circumstances removed them from the necessity of active occupation have lived long, and have died of other affections. If, however, the disease has advanced so far as to be complicated with dropsy, and if the patient is intemperate, or is obliged to labor for his maintenance, the prognosis is unfavorable, and the disease will have a fatal termination, sooner in some cases, and later in others.

The most formidable varieties of valvular disease are, a state of considerable contraction of the mitral orifice, and a state of the aortic valves permitting free regurgitation. A contracted state of the aortic orifice is a less dangerous lesion than a contracted state of the mitral orifice; and a state of the left auriculo-ventricular orifice permitting regurgitation, is a less dangerous lesion than a state of the semilunar valves permitting regurgitation; because the impediment or obstruction to the circulation is always greater in the latter than in the former cases. When disease engages two valves at the same time, the prognosis is always, as may be supposed, more unfavorable than where a single valve is engaged. For instance, regurgitant disease of the mitral valve may exist, as I have said, for a considerable time, without occasioning much embarrassment to the circulation, or much inconvenience to the patient; but if it comes to be complicated with contraction of the aortic orifice, the danger becomes considerable, because, as the ventricle contracts, there is not only the direct impediment to the passage of the blood into the arterial system, but much of it is likewise impelled backward into the auricle. When mitral regurgitation is combined with regurgitation through the aortic orifice, the circulation is liable also to become greatly embarrassed, and still more so if these valvular lesions are further complicated with hypertrophy or dilatation of the left ventricle. Considerable contraction of the mitral orifice is, as has been said, one of the worst forms of valvular disease; but if this condition of the

mitral orifice is combined with regurgitation through the aortic orifice, the prognosis will be still more unfavorable, because the impediment to circulation will be greater, and its effects will sooner become evident in the system. In some cases of this description the patient expires suddenly; in the others he lingers for a longer or shorter time, and dies, worn with pain and suffering. The age of the patient exerts some influence on the rapid or slow progress of the valvular disease; in young persons it usually pursues a more rapid course than in old age—hence the prognosis is more unfavorable here (because the parts have not time to accommodate themselves to their altered condition) than in the cases of old people, in whom valvular disease not unfrequently arises so gradually and slowly that the patient is unconscious himself of anything being wrong; and unless some acute attack, or some other disease comes to complicate it, may be unsuspected up to the time of his death. In many instances we know that ossific disease to a considerable extent is found in and about the valves of the aorta in persons advanced in life, where nothing of the kind had been suspected previously. In addition to the different points already mentioned, the condition of the patient's general health, and the amount of congestion of the lungs, liver, or other organs present, must influence our prognosis in valvular disease. If the general health is broken down, or the system in an anæmic state, the prognosis is more unfavorable than under opposite circumstances. If there is much obstruction to the pulmonary circulation, and the lungs have been long in a state of congestion, they are very liable to attacks of inflammation, which will increase the dyspnoea, and aggravate the patient's sufferings. The diseased valves themselves sometimes become the seat of fresh attacks of inflammation, and if the system is in an anæmic or cachectic condition, the patient will be unable to bear the necessary treatment, and the disease will prove more quickly fatal. If the liver has been long in a congested state, and the portal circulation been long obstructed, congestion of the kidneys and lungs next occurs; eventually, congestion passes into structural alteration, the functions of these organs come to be imperfectly performed, the urinary secretion becomes more scanty, and fluid is effused into the cavity of the peritoneum. In such cases the prognosis must be always exceedingly unfavorable.

Part 10., p. 4.

Treatment of Hypertrophy of the Heart.—[In considering the treatment of hypertrophy of the heart, we must remember that it has been slow growth, and cannot therefore be quickly removed, and also that we possess no specifics for the disease, and cannot place much reliance on drugs alone for its cure.]

The treatment of hypertrophy, says Dr. Bellingham, must vary somewhat according as the disease is simple or complicated with dilatation of the ventricles, or with valvular or other diseases of the heart, according to the age of the patient, the presence or the absence of dropsy, etc. It may also vary with the cause which has produced the hypertrophy; indeed, the majority of the cases which we see are the result of an impediment to the passage of the blood out of or through the cavities of the heart, and the increased thickening of the walls of this viscus, is the result of nature's effort to overcome the obstacle. The treatment must also vary according to the stage at which the disease has arrived. Few cases, comparatively speaking, are met with in hospital practice, where the hypertrophy is a

ple or uncomplicated; patients belonging to this class seldom present themselves or seek for relief, until dropsy or other symptoms supervene, which compel them to discontinue work. Simple hypertrophy of the ventricles is more amenable to treatment than hypertrophy with dilatation of the ventricles; but it is a form of the disease which we are rarely called upon to treat. Hypertrophy, with dilatation, if advanced, is seldom cured; and if it is still further complicated with valvular disease or adhesion of the pericardium, it is perfectly incurable; because the lesion to which it is consecutive is irremediable. In such cases we can do little more than palliate the symptoms which occasion most distress, and endeavor to avert as much as possible a termination which is inevitable. The objects to be held in view, or the indications of treatment, may be stated in general terms to be as follows: 1st. To remove the cause which has occasioned the hypertrophy. 2d. To diminish the action of the heart, and to lessen irritability of this organ. 3d. To diminish the amount of circulating fluid without enfeebling the heart's action, or producing general debility. By the two first, repose of the organ is insured, and it is placed in a favorable position for the hypertrophy to be diminished. By the latter, the cavities of the heart not being constantly distended, dilatation is less likely to follow. Hypertrophy of the ventricles is stated to have been successfully treated by following up Valsalva's plan of treating aneurism; both Corvisart and Laennec were advocates of it. This method consists in repeated venesection, first in large, afterward in a smaller amount, in limiting the food and drink to a very small quantity, and in keeping the patient constantly in the supine posture. The objects in view were to reduce the inordinate action of the heart, and to diminish the amount of fluid in the circulation to a degree compatible merely with the continuance of life. Of late years a modification of this plan (if it can be so called) has been adopted with advantage, which is particularly applicable to cases in which the patient is young and robust, and where the disease is not very much advanced. It consists in moderate local or general bleeding at considerable intervals; a rather spare regimen—not, however, limited to vegetables—with a small amount of drink; in other words, the diet should be, what is called dry—by which the amount of blood in the system will be diminished, but its quality will not be deteriorated; at the same time, perfect quietude of mind and body is to be insisted on, and everything likely to hurry the circulation, or to occasion mental emotion, is to be strictly avoided. By these means morbid irritability of the heart will be reduced, and the repose of the organ insured. In following out this plan of treating hypertrophy, however, care should be taken, if we avoid one extreme, not to fall into the other.

Cases in which dilatation predominates over the hypertrophy, or in which the patient's physical powers are low, bear venesection badly. Here the loss of a small amount of blood will be followed by even more injurious results than the loss of a large quantity when the patient is plethoric and robust; exhaustion will more quickly follow, the feeble action of the ventricles will become still more enfeebled, they will be unable to empty themselves, congestion will ensue, followed by increase of the dilatation, and the general debility which results will soon be attended by dropsy. Among internal remedies few have been more highly lauded by some practitioners than digitalis. M. Bouillaud terms it the true opium of the heart, and regards it as the most direct and effectual sedative of this organ. He states that he has derived the greatest benefit from the-

endemic employment of digitalis; a blister being first applied to the præcordial region, the raw surface is sprinkled with the powder, in the proportion of from six to fifteen grains, and repeated daily. By this proceeding (according to M. Bouillaud) we diminish, as if by magic, the number and the strength of the beats of the heart. On the other hand Laennec (a most accurate observer) in speaking of digitalis, says: The medicine, of late, has been much employed in the treatment of disease of the heart, under the idea that, in addition to its diuretic, it exerts a sedative action upon the heart. I must confess that this action has never to me appeared very evident or very constant, even when the dose has been carried so far as to produce vomiting and vertigo.

For my own act, I cannot say that I have ever derived much benefit in cases of hypertrophy, or of hypertrophy with dilatation of the ventricle from digitalis, either endermically employed or given internally; the former, in the trials which I made of it, occasioned so much pain as to do away with any sedative action.

As an occasional medicine, and when attacks of palpitation are frequent and severe, the digitalis may be employed with temporary advantage in case of hypertrophy; and the tincture is to be preferred to either the powder or the infusion. Under such circumstances, it may be combined with sedatives, as the tincture of hyoseyamus, or the aqua lauro-cerasi, or with diffusible stimulants, as ether, subcarbonate of ammonia, camphor, etc. When congestion of the lungs or liver has followed the hypertrophy, or even in cases where there is no evidence of either, purgatives, occasionally administered, are highly serviceable; and the patient is often himself sensible of the relief which they afford. They prove of use by unloading the portal circulation, and by diminishing the amount of circulating fluid, without debilitating the patient. The best, under such circumstances, is a mercurial purgative at night, followed by a saline cathartic in the morning, with which colchicum may be combined if advisable, and a bitter infusion constitutes a good menstruum. For the same reason that cathartics are of service in hypertrophy when the disease is advanced, or when it is complicated with dilatation, diuretics will prove still more so by removing the watery parts of the blood, without occasioning even as much debility as cathartics; and when congestion of the venous system has followed, they will assist in postponing the occurrence of anæmia. When dropsy sets in, they are, of course, our principal resource. Recently the aconite in small doses has been recommended, owing to its exerting a sedative action on the circulation, and diminishing the strength and frequency of the action of the heart; but as it likewise diminishes the frequency of the respiration, it obviously does not admit of being employed in advanced cases of hypertrophy where more or less impediment to the pulmonary circulation is always present.

The foregoing, indeed any mode of treatment of hypertrophy, will be unavailing, unless (as Dr. Hope observes) steadily pursued; and it must be persevered in for one, two, or three years, according to circumstances. "The great majority of recoveries take place between one and two years, but a year or two of subsequent precaution is most desirable to prevent a relapse." Two of the greatest impediments to success (he adds) are—1st, that the patient is often so much relieved at the end of two or three months as to believe himself well; and, 2dly, that other practitioners, finding the heart calm and the respiration free, persuade him that he has

not, and never has had, organic disease of the organ. The latter observation of Dr. Hope is unfortunately too true. *Part xii., p. 52.*

Treatment of Dilatation of the Heart.—Dr. Billingham continues his remarks on diseases of the heart as follows :

As a general rule, the treatment of dilatation is directly the reverse of that hypertrophy. In the one case, we have evidence of increased nutrition of the heart ; in the other, of feeble or diminished nutrition. In the one case, we find a strong heart impelling the blood with increased force through the general arterial system ; in the other, we have a feeble heart, unable to propel its contents to any distance, and probably incapable of emptying its cavities.

The objects to be held in view in the treatment of dilatation are : 1stly. To remove the cause which occasioned the dilatation, if that be practicable. 2dly. To tranquillize the circulation, and relieve the heart of the blood which overloads or oppresses it. 3dly. To strengthen the parietes of the heart, by which it will be enabled to expel its contents, and the further progress of the dilatation be opposed. 4thly. To diminish or remove the congestion of the lungs, liver, etc., and the other effects of impeded circulation, without debilitating the patient. If the dilatation is the result of valvular disease, or if it has followed adhesion of the pericardium, the effect of pericarditis, we can do but little more than palliate symptoms ; both these pathological conditions being irremediable. On the other hand, if the dilatation is the result of any cause which can be removed ; if, for instance, it has followed prolonged muscular exertion, or violent mental emotion—if it has succeeded to frequent attacks of bronchitis, or occurs in patients debilitated by loss of blood from any cause—if it arises in subjects weakened by previous illness, or comes on in chlorotic and anæmic individuals, much benefit may often be derived from treatment, provided the patient is young, the disease not in an advanced stage, and not complicated with attenuation or softening of the parietes of the organ. In order to tranquillize the circulation and to relieve the heart of the blood which overloads or oppresses it, this organ must be maintained in as complete a state of repose as possible, which is to be accomplished by rest, by avoiding everything likely to excite or agitate the mind, by regulated diet, and obviating dyspeptic symptoms, which are very common attendants upon this condition of the heart. The food should be nourishing, and but little fluid is to be permitted ; at the same time, the secretions are to be maintained in a healthy condition ; by these means the amount of blood will be diminished, while its quality will not be deteriorated. Functional derangement of the stomach is common in cases of dilatation, and nothing under such circumstances is more likely to bring on palpitation and add to the distress of the patient, than a full meal or flatulent food : hence, the food should be such as is easily digested, and should be taken in small quantity at a time ; and anything which occasions distention of the stomach or flatulence, should be carefully avoided. The medicines calculated to relieve the dyspeptic symptoms, will vary, of course, according to circumstances ; sometimes antacids, at others acids are indicated ; carminatives are occasionally serviceable, and the hydrocyanic acid in minute doses is sometimes given with advantage.

In order to strengthen the parietes of the heart, and to enable it to

expel its contents, tonics variously combined are indicated; by improving the general health we give tone to the heart, and thus assist in diminishing or retarding the increase of the dilatation. Everything calculated to debilitate the system is to be avoided; hence, bleeding, digitalis, and antiphlogistic measures of every description are contra-indicated as a general rule. If digitalis is a dangerous remedy in some of the diseases of the heart which we have been considering, it is still more so in dilatation when at all advanced; or if the parietes of the ventricles are attenuated. Here the palpitation is an effort of nature to assist in relieving the heart of the blood which distends its cavity; if we diminish the increased action by administering digitalis, we take away the only safeguard left; the organ can no longer accommodate itself to the amount of blood which it receives, and the death of the patient may be the result.

In order to diminish or remove congestion of the lungs, liver, etc., we must be very guarded in the use of measures likely to debilitate the patient, and we must trust rather to diuretics, diaphoretics, and expectorants, than to hydragogue cathartics, or local abstraction of blood, which prove so useful in other forms of heart disease. As the extremities are habitually cold, means should be employed to equalize the temperature, and to determine to the surface, by which congestion of internal organs will be likewise relieved.

In conclusion, it must be borne in mind, that dilatation is a chronic affection, which, in its early stage, and when moderate, produces little inconvenience, and hardly requires treatment, but which, when advanced, is little under the influence of internal remedies; any improvement, consequently, must be slow and gradual, and in many cases we can do but little more than palliate symptoms; consequently, the success of our treatment will depend in a great measure upon the patient observing carefully the rules laid down for him; if he lives intemperately, or is obliged to labor for his bread, the disease will run a more rapid course.

Part xii., p. 55.

Heart—(Functional Diseases).—Palpitation may be owing: 1st. To a distended stomach; and thus interfering with the descent of the diaphragm, and confining the heart's motions. 2d. A distended colon pressing on the aorta, causing fullness of blood on the left side of the heart. 3rd. A distended stomach and colon pressing on the ascending cava, and causing a deficiency of blood on the right side of the heart. 4th. Hepatic disease. Each of these states will require its particular treatment.

Part xiii., p. 77.

Simulated Hypertrophy.—Impulse of the heart, taken alone, however great, and however extensive it may be, is not a sure physical sign of hypertrophy. Hypertrophy, indeed, cannot exist without excess of impulse, but excess of impulse can exist without hypertrophy. When the impulse of the heart is excessive, and at the same time its sounds are obtuse, muffled, and indistinct, and the præcordial region presents a larger space than natural which is dull to percussion, then the signs of hypertrophy are complete. But when the impulse of the heart is in excess, and at the same time its sounds are as loud and clear as ever, or louder and clearer still, and the whole præcordial region is quite resonant to percussion save the small space which is naturally dull, then the signs of hypertrophy are incomplete.

When this occurs in plethoric and sedentary young persons, employ depletion, abstinence, and active habits. In other cases the patient is thin, pale, dyspeptic, and nervous: here stomach, nerves, and blood being all at fault, long and varied treatment is required. Again it occurs in young persons where there is neither anæmia nor hyperæmia to indicate the source of disease. In these cases no particular treatment can be recommended, or is likely to do good; but the disease not unfrequently suddenly disappears.

Part xv., p. 90.

Pulmonary Congestion Simulating Angina Pectoris.—Dr. Latham frequently meets with cases similar to the following:

A man has hypertrophy of the heart in a moderate degree, with some small amount of valvular injury, or with none at all. Hitherto he has been tolerably free from painful palpitation and dyspnoea, except under excitement or extraordinary exertion. But suddenly he is found gasping and struggling for breath, and expecting instant dissolution. What is this; and what is to be done? Truly one might be excused for thinking of angina pectoris, or some spasm of the heart, and flying to ammonia and ether and opium for relief. But, putting my ear upon the chest, I have found a small crepitation diffused through the half of one lung, or in the half of one lung I have been unable to catch any audible murmur whatever, either natural or morbid. A single cupping upon the chest, just opposite the portion of lung that labors, has swept away the crepitation, or has removed the dullness, and brought back the respiratory murmur; and the patient has been restored in a day or two to his ordinary state of comfort. Here in one instance there has been sudden and extensive effusion into the extreme bronchial ramifications or vesicular structure of the lung, and in another there has been sudden and extensive congestion.

Part xv., p. 104.

Polypiform Concretions in the Cavities of the Heart.—Dr. Hope and M. Bouillaud classified the so-called polypi of the heart into three kinds, viz., unorganized, slightly organized, and more completely organized. Dr. Bellingham proposes a different arrangement of them under the following heads, viz.:

1. Concretions consisting of a coagulum coated with fibrin. 2. Concretions consisting exclusively of fibrin. 3. Concretions consisting exclusively of lymph. 4. Concretions consisting of lymph coated with fibrin.

The treatment of these cases can be little more than palliative, since they soon terminate fatally. Various means have been recommended with a view of dissolving the concretions, but the absurdity of such practice is obvious. Dr. Bellingham gives the following conclusions:

1. That concretions occasionally form in the cavities of the heart, during life, of such a size as to impede the action of the valves, to obstruct the passage of blood through this organ, and to occasion the death of the patient.

2. That these concretions, although termed polypi, have no analogy whatsoever with polypi, either in appearance, composition, or mode of development.

3. That certain diseases of the lungs or heart, as bronchitis, pneumonia, endocarditis, valvular disease, etc., sometimes owe their fatal termination to the formation of these concretions in the cavities of the heart.

4. That the concretions which form during life in the cavities of the heart may consist either of fibrin or of lymph, or of lymph coated with fibrin.

5. That the concretions composed of fibrin are most frequent upon the right side of the heart, but may occur on both sides; and that the concretions which consist of lymph, or of lymph coated with fibrin, are usually found only on the left side of this organ.

6. That fibrinous concretions, whether they occur in amorphous masses, or in stratified layers, are deposited from the blood which circulates through the heart. That concretions composed of lymph, whether this forms the substance of the mass, or merely its nucleus, are deposited by the vessels which supply the heart itself with blood.

7. That fibrin, whether it constitutes the substance of these concretions, or whether it is deposited in concentric layers in the sac of an aneurism, is perfectly unorganized, and perfectly incapable of becoming organized. That lymph, on the contrary, is an organizable substance, and quite distinct from fibrin, with which it is still confounded by some physiologists.

8. That where pus has been found in fibrinous concretions contained in the heart, its presence is to be regarded as the result of phlebitis, not as a product of inflammation in a substance which is quite unorganized, and consequently incapable of undergoing such changes.

9. That increased extent of dullness in the præcordial region, confused or irregular action of the heart, intermission or irregularity of the pulse, or an abnormal murmur accompanying the heart's sounds, are not necessarily symptoms of the development of a polypous concretion in the cavities of the heart.

10. That no means are known by which polypous concretions in the heart, once formed, can be dissolved; consequently, the administration of substances which render the blood more fluid, or which are supposed to be capable of dissolving them, can have no useful effect.

Part xix., p. 68.

Position of the Orifices of the Heart, and the Great Vessels.—Relative Position of the Orifices of the Heart to the Parietes of the Chest.—The right auriculo-ventricular orifice lies behind the centre of the sternum, on a line with the lower margin of the articulation of the cartilages of the fourth ribs with the sternum.

The left auriculo-ventricular orifice lies behind the cartilage of the fourth left rib, near the sternum.

The pulmonary valves are on a line with the space between the cartilages of the second and third ribs, to the left of the sternum, and very close to this bone. In some instances they lie a little lower down, viz. on a line with the junction of the cartilage of the third left rib with the sternum, and immediately under it.

The aortic valves lie behind the sternum, on a line with the junction of the cartilages of the third ribs with the sternum, and toward the left edge of this bone. When the valves of the pulmonary artery are situated lower down, the semilunar valves of the aorta will be lower also, and on a line with the interval between the insertion of the cartilages of the third and fourth ribs.

The free edge of the semilunar valves of the aorta corresponds acco

rately, M. Gendrin observes, to the base of the pulmonary valves. A line drawn across the inferior margin of the third ribs corresponds to the base of the valves of the pulmonary artery, and to the free border of the aortic valves.

Relative Position of the Orifices of the Heart to one another.—The right ventricle ascends higher than the left, and the left ventricle descends lower than the right. Hence, the origin of the pulmonary artery is on a plane above that of the aorta.

The pulmonary orifice is the highest up, as well as the most anterior, of all the orifices of the heart. The aortic orifice lies behind it, and on a plane lower down. The left auriculo-ventricular orifice is immediately behind the aortic orifice, but on a plane lower down. The right auriculo-ventricular orifice is nearly on the same plane as the left, but more anterior.

Relative Position of the Large Vessels to the Parietes—Aorta.—The ascending portion of the arch of the aorta comes to the right of the sternum, between the cartilages of the second and third ribs. In this part of its course it is within the pericardial sac, and in the dead subject lies at the depth of one inch and a half from the surface, the margin of the right lung and the pericardium being between it and the parietes of the chest. The transverse portion of the arch of the aorta crosses the trachea at the centre of the first bone of the sternum, on a line with the lower margin of the articulation of the cartilages of the first ribs with the sternum, and at a still greater depth from the surface. The arch of the aorta approaches most closely to the parietes at the point at which the arteria innominata comes off; that is, on a line with the junction of the cartilage of the second right rib with the sternum.

Pulmonary Artery.—The origin of the pulmonary artery is on a line with the junction of the cartilages of the third ribs with the sternum; the tip of the left auricle resting against its left side; it ascends about two inches before it divides; and a portion of the margin of the vessel here comes to the left of the sternum, between the cartilages of the second and third ribs. The division of the artery is on a line with the upper edge of the cartilage of the second ribs, where they join the sternum, the apex of the pericardial sac being on a line with the junction of the cartilages of the second ribs with the sternum, though it is sometimes higher up, and on a line with the cartilage of the first ribs.

Part xxi., p. 99.

Rapidity of the Circulation of the Blood.—The rapidity with which the blood passes through the system can be estimated if the amount which is transmitted into the aorta at each systole of the left ventricle is known, and if the entire quantity of blood contained in the vessels is determined—the number of pulsations of the heart being given. Thus it has been estimated that the whole amount of blood contained in the vessel is about twenty-eight pounds; and that an ounce and a half is expelled at each systole of the left ventricle. If, then, the heart of the adult beats seventy-five times in a minute, $112\frac{1}{2}$ ounces, or a little more than seven pounds of blood, would pass through the ventricle in a minute; in four minutes the entire twenty-eight pounds would pass through the heart; and in every hour it would pass through it fifteen times.

Part xxi., p. 106.

Fatty Diseases of the Heart.—[The most prominent effects of fatty degeneration on the functions of the heart are those which exhibit the deficient powers of the organ. Dr. Quain first considers]

Coma.—Several writers have described coma, preceded or not by giddiness in connection with enfeebled powers of the circulation. Mr. Adams observed as many as twenty attacks of coma in one of his cases. Mr. R. W. Smith and Dr. Stokes have made similar observations. The explanation of these attacks is this, that the power of the heart is reduced, and thus it is rendered incapable of readily sending on the blood which it receives; hence arises obstruction to the circulation and unequal pressure on the brain. The explanation is no doubt correct.

Syncope.—Cardiac syncope is a term properly and more frequently used by the older writers than by ourselves, notwithstanding the arguments of Bichat on the subject. Dr. Burrows, in his interesting work on the cerebral circulation, has clearly established the fact, that syncope is due to a deficiency of that pressure within the skull which is essential to the performance of the functions of the brain. On this principle we can explain the frequency with which this symptom is found to occur in fatty disease of the heart.

The case of an old man who fell under the notice of Dr. Williams and myself is very remarkable. I was one day suddenly called to him, and found him, as I myself and others believed, dead. He had been in an unusual state, and taking his dinner a few moments previously. Though neither pulse nor respiration could be perceived, nor in a hurried examination could the sounds of the heart be heard, I felt from something about his appearance that he was not dead. An electro-magnetic apparatus was set to work from the spine to the region of the heart; other stimuli were made use of, and after several minutes he slowly recovered. These fits, in a slighter form, recurred almost daily for two years, when he died in one exactly like the first. The heart exhibited fatty degeneration. In some cases this feeling amounts to nothing more than a sense of faintness, a feeling that the person must fall if he does not lay hold of something; and in some instances, as in a case at present under my care, this slight faintness is accompanied by an impression that he is about to die. Such persons do die. This mode of death is in many cases instantaneous; in other cases death, though sudden, is not so rapid in its occurrence; the fatal faintness is progressive, and death may not occur for several minutes after its onset. Facts within my knowledge lead me to think that many distinguished men have thus died, and that in this condition has lain the hidden and frequent cause of many sudden deaths. The paleness of the features, the unaltered state of the pupils, the absence of stertor, and the feeble action of the heart, enable us to distinguish these cases from apoplectic seizures when we see them before death. The age also at which apoplexy occurs most frequently, is not that at which we most frequently find fatty degeneration of the heart. For example, of forty-nine cases of apoplexy, forty-two occurred in persons under sixty, and seven only in those over sixty; whereas in seventy-nine cases of fatty degeneration of the heart, forty-one were above sixty years of age.

Shortness of breathing is recorded as having been present in about one-half the cases. In some cases it appears as a sense of choking or suffocation—the person feels as if breathing through a sponge. In some instances the difficulty of breathing is so slight, that it is scarcely regarded; in others so severe, that the slightest effort, particularly in mounting ascents, is most distressing. A peculiarity was observed in two subjects, one of which

lives, viz., that reading aloud caused no inconvenience, whilst it was distressing to ascend a gentle height.

[Another of the recorded phenomena connected with fatty degeneration of the heart is *pain*. In some cases it is confined to the region of the heart; in others, it extends over the chest and down the arm, as in *angina pectoris*; but—]

There is some evidence to show that rupture of a few fibres may occasionally occur without being fatal and cause pain; but in the majority of cases the pain appears to be due to over-distention of the cavities with blood on the one hand, or to the spasmodic contraction just alluded to on the other—it being remembered, that though the heart in health does not possess common sensibility, it may in diseased conditions acquire this property. These latter phenomena, that is to say, syncope, breathlessness, and pain, may occur separately, or two or all of them may be present at the same time; their combination gives us the characters of the disease known as *syncope anginosa*, or *angina pectoris*.

As we cannot restore muscular fibres that have been destroyed, we can only hope to arrest or suspend for a time the progress of the disease by improving the quality of the blood, and thus supporting the vigor of those portions of the heart still uninjured. We must pay attention, in the first place, to the digestive organs; give bitter tonics and alkalies, and subsequently iron in different forms, and carefully regulate the habits of life. For the pain and the distressing attacks of *angina pectoris*, the greatest relief followed the repeated application of three or four leeches, succeeded by a blister, and after these the internal use of iron. Be careful in recommending exercise. Narcotics are given with great risk, but it is almost needless to indicate the usefulness of antispasmodic remedies during the paroxysmal attacks.

Part xxii., p. 95.

Disease of the Heart, and Dropsy following it.—In warding off the symptoms or feelings too often concomitant with disease of the heart—next to quietness of mind and body, equable temperature, and moderate or rather low living—there is nothing equals the use of small doses of colchicum wine, weak saline purges, and inserting a seton over the region of the heart. In a sudden paroxysm of violent dyspnoea, with feelings of immediate suffocation, no means are equal to abstracting from two to four ounces of blood from the arm. In the treatment of cardiac dropsy, the following diuretic, which will pump the patient out, so to speak, sometimes in a few hours, is recommended, and it is often of equal value in repeated attacks of the *anasarca*. R *Infusi digitalis*, $\zeta\text{iv.}$; *potassæ acetat.*, 3ij. ; *sp. æth. nitrosi*, 3ij. ; *aquæ cassiæ*, ℥ss. Capiat cochleare magnum quartâ quâque horâ. If these remedies (diuretics) fail, we must fall back upon purgatives, elaterium chiefly. R *Elaterii*, gr. j. ; *extracti coloc. comp.* ℥iiss. ; *extracti hyoscyami*, gr. xij. M. Divide in pilulas xij. Capiat unam nocte maneat. The combination of tartrate of potass, or the tartrate of potass and soda, with the infusion of senna, is highly efficient. Puncturing the extremities, and thereby draining off the fluid, should not be had recourse to until all internal remedies have failed; though, whether as a palliative or as a hope of cure, it deserves more notice than it commonly gets. Although fomentations are more generally advised, yet the evaporating lotion has been found very successful in keeping down any disposition in the part to erysipelas.

Part xxii., p. 98.

Conclusions respecting the Seat and Nature of Angina Pectoris.—Dr. Kneeland draws the following conclusions from his researches into the nature and causes of angina pectoris:

1. From the symptoms and morbid appearances, angina pectoris is not a disease of the lungs, heart and its vessels, or stomach, but an affection of the nerves supplying these organs.

2. Anatomy, physiology, and pathology would lead us to place the seat of angina pectoris in the par vagum, and not in the sympathetic system of nerves.

3. Like other nerves, the par vagum may be affected with neuralgia and rheumatism with inflammation; it may be compressed by tumour growths; its spinal origin may be compromised by hemorrhage, accidental wounds, and various irritations—all of which may cause the symptoms of angina pectoris.

4. Angina pectoris and asthma are intimately related; the former being an affection more especially of the *sensitive* filaments of the par vagum; and the latter an affection of its *motor* filaments. Both are generally more or less combined in the same case.

5. Angina pectoris is a disease not necessarily fatal, especially in young persons, if accurately diagnosed and properly treated.

6. In addition to the remedies of the books, special attention should be given to the inhalation of oxygen, and to the use of electricity.

7. In cases of angina pectoris, attention should be directed to the examination of the par vagum, from its origin to its terminations, which, doubtless, on careful examination, will exhibit lesions sufficient to account for the fatal result.

Part xxii., p. 11.

Rheumatic Heart Disease—Endocardial Deposits.—Are the deposits of fibrinous matter so frequently found upon the valves of the heart produced from inflammation of the lining membrane? or are they precipitations of fibrin, owing to the blood containing more than its normal proportion? Opinions upon this subject seem divided. Nitrate of potash, however, has been strongly recommended in rheumatic fever in which fibrin is in excess, and apparently with justice, on account of its well known property of dissolving fibrin, preventing fibrinous concretions on the valves, by increasing the solubility of this material, and diminishing its liability to precipitation.

Part xxiii., p. 16.

Angina Pectoris—Definition.—Neuralgia of the branches of the par vagum, going to the heart and lungs; embarrassing the functions of these organs, and spreading by nervous connection to other parts.

Causes—Predisposing; the middle age, the male sex, an indolent, luxurious, studious, or sedentary life; gout, rheumatism, or neuralgia; or worse than these, the long-continued anxiety of mind and fatigue of body.

Causes—Exciting; running, walking, especially up hill or up stairs, or bodily exertion or mental excitement, and rapid changes of temperature; thus we most frequently see a severe attack after great exertion, a fit of passion, or on the evening of a cold wet day. As the disease increases in severity it will be found that lighter causes are sufficient to produce an attack; and that any one of them will occasion a seizure much more certainly after a meal. Finally, when the disease has become chronic, it may even attack the patient in his sleep.

Symptoms.—In the acute form of the disease the patient is suddenly

seized with a sharp, darting, lancinating, or stabbing pain under the left breast, frequently spreading to the throat, arm, back, and leg of the same side; this pain frequently amounts to the most excruciating agony, and has been compared by Laennec to the piercing with nails or the laceration of the claws of animals; and is accompanied by a sense of suffocation, great difficulty of breathing, tendency to syncope, and flatulent distention of the stomach followed by eructations; together with the fear and the feeling of immediate death.

The pulse varies in different individuals.

After lasting for a longer or shorter time, proportioned to the severity and duration of the disease, the attack generally passes off spontaneously, or yields to the remedies employed.

A feeling of weakness and numbness sometimes remains for a little time in the parts previously affected with pain. In addition to the anginous paroxysms the patient generally suffers from some other allied disorder of the nervous, digestive, or circulatory system, which may have been either a cause or a consequence of his malady; tic, dyspepsia, constipation, diarrhoea (leucorrhoea, if the patient is a female), œdema, dropsy, or organic disease of the heart, may also be present to increase his suffering and diminish his hopes of recovery.

Diagnosis.—The only disease which bears any resemblance to angina is asthma; but the sharp pain in the breast and arm, and the sense of suffocation characteristic of angina, can hardly be mistaken for the dyspnoea, cough, and expectoration of asthma.

Prognosis.—Angina is a disease not necessarily fatal when occurring in young subjects with no organic disease of the heart; but when it occurs in elderly people with organic disease of the heart or great vessels, it is always mortal.

Pathology.—It is the opinion of Jurine, Desportes, Laennec, Chapman, and Copland, that it is a species of neuralgia of the pulmonary and cardiac nerves, affecting the functions of the heart and respiratory organs, and extending by nervous connection to other parts; the organic lesions found in fatal cases being either coincidences or effects of the disease.

Treatment in the Attack.—If the pulse is full and strong, and the patient stout and plethoric, bleeding from the arm should be practised; but if the patient is weak and debilitated, and the pulse feeble and slow, it should be altogether avoided. And instead of bleeding, a flannel wrung out of hot water and sprinkled with turpentine should be placed over the region of the heart; the feet put in hot water containing mustard, and sixty drops of laudanum given immediately in a glass of any strong spirit; if relief is not speedily obtained, this dose may be repeated with perfect safety, and sometimes acts like a charm in relieving the pain. This should be followed by the exhibition of some antispasmodic and carminative, such as ether, aromatic spirit of ammonia, or ammoniated tincture of valerian in cinnamon or mint water, in order to assist the stomach to expel the gas which distends it; these should also be given after bleeding in those cases in which it is practised, for when greatly distended, as it commonly is in this disease, the stomach pushes up the left side of the diaphragm; this diminishes the capacity of the chest, and so impedes the movements of the heart.

Treatment in the Interval.—Attention should be paid to the patient's habits and manner of living; the state of the stomach, bowels, liver (and

uterus if a female); the condition of plethora or anæmia, and the predisposition to gout, rheumatism, or neuralgia; in short, every appreciable disorder of the system is to be met by the appropriate remedies, and corrected as far as possible. If the stethoscope should enable us to discover an abnormal condition of the heart, the treatment must have a special reference to that condition: of course, where there is serious organic disease of the heart, a cure is not to be looked for; here the utmost we can do is to palliate the urgent symptoms. The remedies which have been found most useful are leeching, or cupping and counter-irritation over the region of the heart by means of croton-oil liniment, tartar emetic ointment, repeated blisters or issues with low diet in the cases of stout plethoric individuals. With weakly debilitated subjects an opposite plan of treatment ought to be followed; tonics, such as bark and steel, should be exhibited with nourishment and cordials. Various other medicines have been recommended in angina; the preparations of iron, sulphate of zinc, nitrate of silver, arsenical solution, sulphate of quinine, mercurials, and colchicum may all be prescribed with advantage according to the various indications afforded by the history of each individual case.

In addition to the above, we may mention that Laennec recommended magnetism, and Kneeland electricity; and that Heberden gave an opiate at bed-time, when the attacks occurred during the night.

Part xxiv., p. 11.

Cardiac Inflammation.—If exceedingly sudden and formidable, as in rheumatism, bleed from the arm boldly, and follow up with opium and mercury, as well as colchicum. If the attack has been foreseen, small amounts of blood, locally abstracted, may serve the same purpose. If necessary, this may be followed by a blister and belladonna plaster, while mercury and antimony are exhibited with a small amount of opium. Then give colchicum cautiously to convert the uric acid into urea: to accomplish this, it need produce none of its usual physiological effects. Nitrate of potassa and phosphate of soda may also be given, and if acidity is suspected in the lower bowels, magnesia may be given. Irritability or pain is to be subdued by hyoscyamus, digitalis, aconite, or conium. Part xxiv., p. 31.

Rheumatic Pericarditis—*Dr. Todd's Treatment of.*—*Vide Art. "Rheumatism."*

Endocarditis.—No matter what may be our opinion of the extent of endocarditis, we must meet the depression with stimulants and opium, particularly with a full anodyne at night; and next, if we can obtain a full bleed, we must as soon as possible superadd local bleeding, blistering, and the use of mercury, to check the effusion of lymph, and to proceed to the absorption of what has been poured out. In the subacute stages, rest and abstinence from stimulants form one of the most important points in the treatment; the patient should rest for weeks on a sofa or bed. In convalescence from pericarditis or endocarditis, you may give an anodyne every night.

Part xxxv., p. 11.

Heart Disease.—Most cases of disease of the organs of circulation admit of division into two great classes, with different symptoms and causes, and requiring different treatment; the whole depends on whether the disease is at one or the other side of that great barrier, the mitral valve. To the one class belong diseases of the aortic valves; to the other, mitral.

lesions and obstructive diseases of the lungs, especially old-standing bronchitis, with wheezing respiration. Now, when death occurs *immediately* in the former class, it is by syncope; in the latter, by apnoea; in the latter there is congestion of all parts behind the mitral valve; the lungs, the liver and kidneys are congested, respiration is difficult, there is an icteroid hue of the skin, the urine is scanty, and the engorged venous capillaries unload themselves, causing œdema of the cellular tissue of the lower part of the body. In the case of diseased aortic valves, however, this result is for a long time successfully opposed by the perfect closure of the mitral valve; after a time it may yield, and then the cases are practically the same; still it follows, that, barring the risk of sudden syncope, the danger is much more remote in disease of the aortic than in that of the mitral valves. As regards the principle of treatment, it will be found that in disease of the aortic valves, a tonic, and often stimulating plan of treatment, is required in order to counteract the tendency to yielding of the ventricular wall. The sulphate of zinc, among medicinal agents (which, however, must only constitute a small part of our tonic plan of treatment), is very useful; but reliance may especially be placed on senega in these cases; it may be given along with hyoscyamus and nitric ether, and though an empirical remedy, the benefit derived from this medicine in palpitation from diseased aortic valves is "invariably great." On the other hand, in the mitral class of cases, we must direct our efforts to unload the congested vessels. The portal system must be relieved by free cathartics, after which a free secretion of urine may often be established. Free secretion from the bronchial mucous membrane is also of much advantage. Digitalis, squill, and calomel, a grain of each in a pill, is a formula in very frequent use by Dr. Addison.

Part xl., p. 47.

HEMIPLEGIA.

Treatment of Hemiplegia from Softening of the Brain.—Prof. Bennett says:

"I believe that the most important end for the practitioner to aim at, in the early treatment of these cases, is to keep down the frequency and force of the heart's action. For this purpose the strict maintenance of the horizontal posture is of the highest moment; and when the patient is conscious, it is most desirable that the mind should be tranquillized by every means. It will, of course, likewise be necessary to remove all local impediments to the easy flow of the circulating fluid; and it is as well that the head should be slightly raised, sufficient to prevent gravitation favoring the escape of blood from the ruptured vessels, but not so as to create any impediment to the flow which might embarrass the action of the heart.

To remove any source of nervous irritation which may be operating injuriously on the brain, the bowels should be cleared; and in order that there may be as little effort as possible on the part of the patient in the expulsion of the contents of the bowels, it is expedient that this should be done by enema: but if this fail, and the vital power of the patient do not forbid it, you may give croton oil, a drop or two of which, placed on the tongue, will operate freely; or calomel, in powder, to the extent of five

or ten grains, which may be similarly administered. I would advise to limit the further administration of drugs to giving some slight corrective, as an alkali—ammonia being, on the whole, the most appropriate unless, indeed, you find the patient in an extremely prostrate condition when it will be necessary to combine with it the cautious exhibition of other stimulants and restoratives, as chloric ether, brandy, etc.

The question of bleeding will arise; and under the popular notion, that all head attacks are accompanied and caused by the rush of blood to the head, you will be pressed to have recourse to this expedient. There are three objects to be attained by bleeding; first, to diminish an undue amount of blood in the head; secondly, to check hemorrhage, or to prevent it; and lastly, to quiet the heart's action.

If the patient be cold and collapsed, it is clear you should not bleed; nor should you have recourse to this practice if the heart's action be very feeble or intermittent; nor if there be an anæmic state; nor if the patient be of very advanced age; nor if the evidence of extensive disease of the arterial system, or of the heart, leave no doubt on the subject; would it be desirable to bleed if it were clear that already a large amount of hemorrhage had taken place into the brain. Should none of these objections exist, then you will have to consider whether any or all of the indications above named need be fulfilled, and whether bleeding (less generally) promises to fulfill them. As to the first indication, namely, diminution of an undue amount of blood in the brain, I think modern investigation of the actual state of that organ clearly points out, that the brain is not in a hyperæmic state, in the cases in which the form of hemiplegia under discussion is likely to occur. Will taking blood check or prevent hemorrhage? The sudden or rapid abstraction of a moderate quantity of blood, either from the arm or temple, or by skillful cupping from the nape of the neck, may, I can conceive, check hemorrhage; and with this object it is, sometimes, a very justifiable practice, but the quantity taken should not be large. Now and then bleeding helps to diminish the frequency and force of the heart's action; but here, again, the quantity of blood withdrawn should be moderate, for the removal of much blood is apt to quicken the heart's action and render the blood poor. I would have looked upon this question, to bleed or not to bleed, as almost the most important one you will have to decide; and, judging from my own experience on this point, as well as from the results of the practice in a large number of cases collected from various sources, I have come to the conclusion that, in cases of white softening, with or without hemorrhage, you are likely to err by omitting rather than by adopting the practice.

You will often be consulted as to "some expedient for promoting the restoration of the paralyzed limbs to their normal condition." To this question, after having given a fair trial to the various means which have been proposed, I must reply, that I know nothing which more decidedly benefits the paralyzed limbs than a regulated system of exercise; and when the patient is capable of it; passive, if otherwise. As to the use of electricity, which is now much in vogue, or the employment of strychnine, which has been strongly recommended, I feel satisfied, as the result of large experience, that the former requires to be used with much caution and that the latter is very apt to do mischief, and never does good. I have seen cases in which, after the employment of electricity for some time, that agent has apparently brought on pain in the head, and has

cited something like an inflammatory process in the brain. And so strychnia also will induce an analogous condition of brain, and will increase the rigidity of the paralyzed muscles. *Part xxi., p. 62.*

HEPATIC AFFECTIONS.

Nitro-muriatic Acid Mixture—Recommended in chronic derangements of the liver with constipation. *Part i., p. 80.*

Debility succeeding Hepatitis.—Mr. Tyson submits the following formula:

LIQVOR OXYSULPHATIS FERRI.

R Ferri sulphat., ʒij. (or ʒiij.); acidi nitrici, ʒiij., aquæ dest., ʒiiss.

Tere diligenter per horæ quadrantem acidum nitricum ferro vitriolato, dein sensim addendo aquam, per chartam cola, et fiant guttæ, e quibus capiat æger gutt. v-xij. bis in die ex infuso quassia vel aqua.

This form I believe, was invented by Sylvester, about forty years ago, and has ever since that time been in constant use among the practitioners of Derbyshire. I wonder it has not been inserted into the Pharmacopœia, as it is by far the best and most powerful of all the preparations of iron. The oxygen of the nitric acid uniting with the sulphate of iron, forms a persulphate; at the same time the iron is converted into red oxide. As a medicine it far surpasses the tinc. ferri mur., and it never precipitates the oxide of iron. It is one of the most valuable restoratives in the debility and torpor of the liver, which remains after the successful treatment of hepatitis. Patients do not well bear above ten or twelve drops to a dose; and when given with small doses of sulphas magnesiae, etc., it equals the purgative mineral waters. I think it will be found to be an antidote to prussic acid, as it instantly combines with it. *Part v., p. 88.*

Cream of Taraxacum.—Dr. Collier gives his own method of using dandelion in hepatic and dropsical diseases—prepared as follows:

Cut the fresh roots of dandelion, freed from any adherent earthy matter (previously washed and slightly scraped) into transverse slices. Sprinkle any quantity of these, while moist, slightly with spirit of juniper, and express them in a tincture-press. The cream thus expressed will keep any reasonable time for the purposes of the practitioner in the hottest weather. The dose, a tablespoonful, or more, twice or thrice a day, will probably produce two or more diurnal biliary evacuations. It may be diluted, and put up in the form of draughts, with any of the diuretic waters or infusions, or with a solution of cream of tartar.

Part viii., p. 71.

German Treatment of Engorgement of the Liver and Spleen.—Dr. Schwabe, of Gross-Rudstadt, makes known to us the following recipe, which he has employed successfully against the above affections:

R Belladonna root, powdered, a grain and a half; muriate of quinine, four grains; powdered rhubarb, fifteen grains. Mix for ten powders; one to be taken morning, noon, and night, in any convenient vehicle.

Part viii., p. 78.

Hepatalgia.—Andral has introduced the following "Clinique Médicale:" "We sometimes," he says, "of the liver severe pain, which cannot be accounted for by any lesion of the viscus or its excretory ducts, hepatalgia, or hepatic colic. The circumstances justifying the nature of the pains, their intermission, and their recurrence, which often exists in the intervals, all lead us to have their site in the numerous nervous filaments of the liver, and which are derived either from the sympathetic or the great sympathetic."

It will be observed that it is essentially a nervous affection, of course, in all important points from inflammation.

Although the pains accompanying hepatalgia are not constant, but are at the outset, and frequently progress of the disorder, paroxysmal, affording immunity from pain. The pathognomonic symptoms of the liver, are pyrexia, tenderness in the hypochondrium, frequent and strong pulsations, and vomiting, sometimes of a bilious, and, at times, of a colored secretion, as the substance of the liver is the invading disease. The bowels are irregular in their actions presenting a great variety of appearances, the secretion is more or less affected; and the urine is colored. In hepatalgia, on the contrary, these symptoms are wanting; there may exist, indeed, constant pain in the region of the liver, increased to a certain degree by exertion, even in the worst cases, occur, which is characteristic of its paroxysmal character. The functions of the liver are uninterrupted as in its healthy condition. To clean, or sometimes, in the centre, there may be

system universally more obnoxious to the incursions of the morbid nervous sensibility. Carbonate of iron is, if possible, even more destructively pernicious. Yet, it has been administered with reckless daring in all the phases and all the complications of neuralgia. Gentle purgatives, combined with colchicum, ipecacuanha, and hyoscyamus, will seldom fail to work a speedy cure: and if the constitution have suffered from protracted unmitigated pain, alkaline vegetable tonics will effect that which we might in vain expect from the rough insoluble mineral preparations. *Part xi., p. 66.*

Acute Hepatitis.—On the treatment of this affection, Sir G. Ballingall says:

With a view to obviate suppuration, and to promote the resolution of inflammation, blood-letting, both general and topical, is our chief resource; but, in addition to this, mercury has been long held to possess something like a specific influence in resolving inflammatory affections of the liver, and to its efficacy in such cases, I can bear personal testimony. I am at the same time persuaded, that, from the high repute which this medicine enjoys, it has in some instances, particularly of the acute disease, been too exclusively trusted to. Practitioners seem now, however to be generally aware, that, in patients of robust constitutions and sanguineous habits, full mercurial action is not easily induced until the tone of the system is lowered by bleeding and other evacuations. It therefore behoves us to remember, that, while bleeding in acute hepatitis cannot be too promptly resorted to, the exhibition of mercury may perhaps be deferred, without any ultimate disadvantage. It was common, in my time, in India, to look upon blood-letting as an evacuation which it was upon all occasions desirable to avoid, but this was a sentiment in which I never permitted myself to indulge.

In hepatitis, I have frequently observed, that when doubt or hesitation existed on the part of the practitioner, when half measures were adopted, and the early stage of the disease thereby neglected, it became extremely difficult of cure, apt to degenerate into a chronic form, and to become a troublesome companion for life. Under the apprehension of such a result, I have employed blood-letting to a larger extent than what the state of the pulse, the height of the symptoms, or the habit of the patient would seem to demand, and of such practice I have never had occasion to repent. I do not, however, mean to allege, that bleeding will altogether supersede the necessity of mercury, but that in the acute form these should at least go hand in hand, and that the latter should be pushed to the extent of producing ptyalism with the least possible delay. In the chronic form of the disease, it is to mercury we must chiefly trust for the reëstablishment of a healthy action in the liver, and the restoration of healthy secretions. The relief experienced, in many cases of chronic hepatitis, so soon as the mercury affects the mouth, is truly surprising; the removal of all uneasy feelings from the side, the comparative clearness of the patient's skin and visage, the return of natural evacuations, and the removal of every complaint but debility, abundantly evince the powers of this remedy.

In either form of hepatitis, smart and habitual purging will materially promote the objects we have in view; and, in this instance, the preference so generally given to calomel in India, is, I believe, well founded.

Part xi., p. 67.

Some of the Diseases of the Liver.—Dr. Budd makes some pathological and therapeutical observations, and among cholagogue medicines he especially mentions mercury, iodine, muriate of ammonia, and turaxicum. Dr. Forbes, however, has never observed peculiar cholagogue properties in muriate of ammonia, nor yet in rhubarb, which Dr. Budd subsequently instances, and is surprised that colchicum and colocynth should have been omitted, particularly the former, since in this respect it stands, perhaps next to mercury. Nitric acid, also omitted by Dr. F., in some cases notably promotes the action of the liver.

Congestion.—The common and usual form of congestion of the liver, is that of the hepatic vein and its capillaries; and that form may be caused by any disease in the heart or lungs tending to obstruct the return of blood by the hepatic veins. If, while the hepatic veins and the capillaries are thus congested, the portal vein and the capillaries immediately branching from it are empty, the appearance called mottled liver is presented, caused by the central vessels of the lobules being full of blood, while those on their margins are void of it. And just in proportion as the vessels continue to be distended in a direction distal from the heart and as the portal capillaries which form the margin of the lobules become filled gradually, will the mottled appearance merge into a homogeneous redness. And now, in addition to sanguineous, will biliary congestion begin to take place; and this plainly in consequence, in the majority of cases at least, of the pressure of the distended blood-vessels on the main branches of the biliary ducts, whereby the discharge of bile along the ducts is impeded. The general result of this state of things is hyperæmia and a state of distention of the biliary vessels analogous to hyperæmia, for which we have no exact name. The liver, of course, becomes enlarged and its color, when an incision is made, is a deep reddish-brown or black. The diagnostic indications of this state are, the dropping of the liver several inches (more or less, according to the degree of enlargement), below the ribs, and a fullness felt by the patient and perceived by the physician in the right hypochondrium. There is not "in general pain; never, we should say, in this simple form of congestion, until its prolongation begins to give rise to inflammatory action. And even then, it is hardly or not at all experienced, until the peritoneal investments begin to suffer, and the affection becomes what Bonnet calls hepato-peritonæa.

In congestion depending upon obstructed circulation through the heart, he advises bleeding, purgatives, diuretics, rest, and those measures, in short, which peculiarly relieve cardiac disease. The reviewer here remarks that purpura hemorrhagica, scorbutic disease, and any affections tending to diminish the fibrin of the blood, require the mineral acids and the bitter extracts. He says, he has witnessed great advantage from the compound infusion and spirit of horse-radish, taken twice or thrice a day, with ten drops of nitric or chloric acid added to each dose. Dr. Budd divides inflammatory affections of the liver into *suppurative*, *gangrenous*, and *adhesive*, and his object is to show, that by far the majority of cases of abscess of this viscus are owing to suppurative inflammation of some vessel and consequent contamination of the blood by pus.

When abscess has formed in the liver, Dr. Budd would never recommend it to be opened unless assured by circumscribed œdema, or a slight blush on the skin, that union had taken place between the integument and abscess.

In diminished secretion, with pale or white stools, give mercury. In excessive secretion: increase the amount of oxygen inspired, and thus, during respiration there will be consumed materials that would otherwise be left for the liver to excrete; for while the carbon of the lungs is united to oxygen, and excreted in a non-combustible state, the carbon of the liver is non-oxygenized, is still combustible, and is intended, not for excretion, but absorption. Limit the supply of food which contributes to form bile, as spirituous liquors, butter, cream, fat, sugar, etc. The patient ought not to sleep immediately after a full meal, nor take suppers.

Part xiii., p. 105.

Bromine in Hepatic Affections.—There can be no doubt that in some cases of hepatic derangement iodine affords relief; and the action of bromine considerably resembles that of iodine. A congestion both of the biliary and of the blood-vessels of the liver occasionally occurs without any obvious cause: the bile is scantily discharged; the volume of the liver is enlarged; and the whole abdomen, probably from a *remora* in the portal circulation, becomes tumid, as in incipient ascites. In these circumstances, an effect seemingly magical follows the use of iodine or bromine. The liver acts and subsides, and the belly rapidly resumes its ordinary size. Magendie's formulæ for the use of bromine are still as good as any, only the doses may be considerably larger than ordered by him. Bromide of potassium, ten grains; orange or cinnamon water, four to six ounces; dose, a dessertspoonful twice or thrice a day. Or, bromide of iron, thirty-six grains; confectio of roses, q. s. for fifty pills; two to be taken night and morning.

In dyspeptics with strumous habits, the above formulæ, the latter of them more particularly, will be found very useful. *Part xv., p. 121.*

Liver, Torpor of.—The greatest possible difficulty meets us in the treatment of this state, occurring in those who return from tropical to temperate climates. What little bile is secreted being vitiated, our indications of treatment should be directed to the production of a more abundant and healthy action, and to the attenuation and elimination of the fluid secreted. Use the fluid extract of taraxacum, with the carbonates of soda and potash, or with the bitartrate of potash, which affects the excretion from the kidneys, increasing it in quantity, and modifying it in quality, while they exert a solvent power on viscid bile, on fatty and other animal substances, and correct the acidity of chyme. If the diuretic effect is wished to be increased, add the acetate of potash, or the benzoate of ammonia. If alkalies prove cold or ungrateful, substitute the dilute nitric and hydrochloric acids, especially where tropical dysentery or diarrhœa has previously existed, or where an irritable state of the mucous membrane is present. Aloes seems to be more valuable with the above combination than any other purgative. If anæmia is present, restore the nutritive functions, if possible, and improve the state of the blood, by the alteratives already mentioned, bitter tonics, chalybeates, with mild aperients, and great attention to the diet and habits of life. If there is reason to believe that organic changes have taken place in the liver, or that it is accompanied with induration and enlargement of the spleen, use the nitro-muriatic acid bath, as it acts powerfully in promoting the functions of the liver, kidneys, bowels, and skin. The nitro-muriatic acid, diluted, is made by mixing three parts of hydrochloric acid, two of

nitric acid, and five of water; and of this dilute acid, three ounces each gallon of water form a bath; two gallons will form a foot-bath while the outside of the legs and thighs, the right side over the liver, the inside of both arms are sponged alternately. Let a dose of Eps salts be taken in some bitter infusion every other morning, while patient is in the bath. If there is dryness or harshness of the skin, a vapor bath twice a week. If the bath is used for the whole body, ex gentle perspiration previously, by covering the patient with hot blanket. If it excites irritation of the skin, let the quantity of the acid be diminished. If irritation of the gums, with general malaise, is produced, relinquish it for a time. This bath may be used for two months, or longer in severe cases. The neglect of this invaluable remedy is very much to be regretted. It seems to be equally valuable in the secondary and tertiary forms of syphilis; and another valuable quality is, that the use of opium is not contra-indicated during its exhibition. We obtain from the use of these mineral acids all the remedial effects in chronic, which we do from mercury in acute diseases, without its injurious effects.

Part xxii., p. 1

Portal Obstruction.—When urine contains purpurine, or presents other appearances of portal obstruction, the diuretics, or other remedies employed should be preceded or accompanied by the administration of mild mercurials, taraxacum, hydrochlorate of ammonia, or other cholitic remedies.

Part xxiv., p. 1

Cirrhosis of the Liver.—This morbid change in the liver consists in hypertrophy of the fibrous element between the lobules of the organ, and its subsequent contraction, whereby its volume is diminished, and the secreting cells compressed and atrophied. As a further result the venous trunks are also compressed, and their commencing ramifications congested that effusion into, or dropsy of, the peritoneal cavity is induced. The nutmeg liver is an incipient condition of cirrhosis, in which the portal system of vessels in the organ is congested. In both conditions, the hepatic cells are more or less fatty and atrophied. The fatty degeneration in nutmeg liver may be seen to commence at the circumference of the lobules, whereas in the advanced stage of cirrhosis, all the cells are more or less diseased, some loaded with fat, and others with yellow pigment. Notwithstanding the great organic changes which are frequently observed in this disease, danger is not so much to be apprehended from interruptions in the functions of the liver, as from the ascites induced by the constriction of the large abdominal veins, which, by distending the abdomen and compressing the lungs and liver, so interferes with the important organs, that death is occasioned.

The treatment in cirrhosis must be purely palliative, and directed to diminishing the ascites, by means of diuretics and diaphoretics. The question of drawing off the fluid by paracentesis is one which rarely arises, in case the swelling is very great, and the embarrassment of the pulmonary and renal organs extreme. Even then, although temporary relief may be obtained by the operation, there is every reason to believe that, in the majority of cases, life is in no way prolonged.

Part xxvi., p. 1

Liver Disease.—The observations of Dr. Jones lead him to believe that the effect of mercury is undoubtedly to produce very great congestion

the liver; hence, in all inflammatory affections of this viscus, it would appear to be a most improper remedy. *Part xxviii., p. 133.*

Cirrhosis.—Dr. C. H. Jones says: As far as my experience goes, hematemesis generally is one of the earlier secondary results of cirrhosis, ascites replacing it, if it has existed, at a later period. In my work on Morbid Conditions of the Stomach, page 59, a case is mentioned in which death occurred from vomiting of blood, without any history of previous illness extending further back than a week. The treatment of cirrhosis, and, of course, of its secondary effects, is, at the present day, a sad opprobrium to medicine. The bar which is set to the free course of blood through the portal vein, impedes, to a great degree, the absorption of any medicines given by the mouth. Diuretics produce no effect, because they never get into the blood, and so never reach the kidneys. Dr. Christison's recommendation of applying fomentations of digitalis infusion to the abdomen, and thus directly arriving at the general circulation, is certainly a promising one; but in one case in which I tried it, it produced no good effect. I cannot but think that the employment of baths of Kreuznach water, now known to be often efficacious in causing the disappearance of fibroid tumors of the uterus, might be tried in cases of cirrhosis, with some reasonable hope of benefit. These might be conjoined with frictions of cod-liver oil over the general surface. Surely it would be better to try perseveringly some plan of this kind, rather than the routine treatment of diuretics and purgatives, whose result in most cases is so unsatisfactory, and which at the most aims merely at the removal of a symptom.

Part xxxii., p. 99.

HERNIA.

Strangulated Hernia—Employment of the Rectal Tube.—Dr. J. O'Beirne, of Dublin, recommends the introduction of a tube to a considerable distance up the rectum in cases of strangulated hernia, for the purpose of giving vent to the flatus contained in the intestine, as this process may occasionally prevent the necessity of an operation. He states that "no medical man can henceforth be considered justified in proceeding to an operation for strangulated intestinal hernia, without having previously given a full and fair trial to the mode of treatment in question." Mr. W. H. Maunder, relates an interesting case in a letter to Dr. Beirne, in which the introduction of the tube of the stomach-pump, to the distance of twenty-six inches, so relieved, and an operation was prevented.

Part i., p. 93.

Preëminence of Tobacco in Strangulated Hernia.—Dr. Jackson says:

The use of tobacco in hernia, and of tobacco or tartar emetic in dislocations, I have long preferred to those copious effusions of blood formerly, and perhaps still too much in use. To lose blood sufficient to induce fainting, and to preserve the system in this state till a bone, or a hernia may be reduced, is an expenditure of the vital fluid, a waste of strength, which very many who are not prone to faint, will not regain for months or years.

The warm bath, and warm fomentations may be tried, but they will hardly succeed in bad cases without the aid of blood-letting. It is true

that if the patient is greatly relaxed by the general warm bath, and blood be let while he is yet in the water, a very small loss may suffice; but this may be in most situations a troublesome remedy, occasioning too much delay. Time, said Franklin, is money; but in the treatment of hernia time is not only money to the physician, but life to the patient, as well as honor to the profession of medicine. Tobacco will do all that bleeding can do, however great the inflammation, all that ice, or cups, or leeches, or any other means can do that have ever been invented.

We have very frequently used cataplasms of tobacco with great advantage for spasms of the bowels, particularly those of saturnine colic.

Deglutition of tobacco-smoke we have used with decided advantage. A few years ago, I was called to a patient in the night, who had been suddenly taken with strangulation of an old hernia: the taxis was gently tried, but the tumor was too sensible to bear much manipulation. There was no syringe, nor means of administering an enema; nor was there a fire in the house, by which a tobacco cataplasm could be quickly made; hence, it instantly came into my mind that he might swallow tobacco-smoke as a substitute. He was furnished with a cigar, and desired to make vehement efforts to pass the smoke into his stomach. He soon became sick and puked, his whole frame relaxed, and covered with a cold sweat. The bowel was now very easily reduced, and the free use of volatile spirits, both internally and externally, soon restored him.

Part i., p. 12.

Reduction of Strangulated Inguinal Hernia.—The Method of Dr. Heaselbach.—"A strong man should place himself at the end of the bed on which the patient is lying, and placing the legs of the patient over his shoulders, so that each knee of the patient shall rest upon one of his shoulders, his feet hanging downward, shall then raise up the patient. The thighs of the patient are thus drawn upward, his head and body rising upon the bed. In this position the taxis is to be repeated."

In a case cited, by placing the patient in the position above described and reemploying the taxis, the hernia was reduced.

Part ii., p. 13.

Strangulated Hernia.—Dr. Warneke recommends the following means when those usually employed for the reduction of strangulated hernia have failed. The patient is to take the following: Opium, two grains; powdered belladonna root, four grains; sugar, four scruples. To be divided into eight powders, of which one is to be taken every half or quarter of an hour. The hernia is to be covered with a warm poultice, containing powdered belladonna, and bandages are to be placed pretty firmly round the upper part of the patient's thighs, close to the abdomen, to retard the return of the venous blood from the lower extremities, and render bleeding unnecessary. The author declares that by these means all the symptoms of strangulation are speedily removed, the patient falls into a quiet sleep, and a profuse sweat, after which the hernia will be found soft and easily reducible.

Part ii., p. 13.

Aphorisms of Practical Surgery.—Congenital ruptures present the peculiarity, that the seat of their strangulation is most frequently in the neck of the herniary sac, and not at the ring. Wilmer has made this remark; and Alanson also has observed, that almost all the cases, in which the stricture is situated in the neck of the sac, are cases of congenital hernia.

The strangulation at the orifice of the herniary sac is very common.

whereas it rarely takes place at the orifice of the ring; this opinion is not shared by all authors on the subject. (Indeed the very opposite doctrine is maintained, we believe, by many surgeons. Were Dupuytren right, the operation of dividing the ring without opening the sac would be almost invariably fruitless.—*Rev.*)

Whenever vomiting ceases during the inflammation occurring in cases of hernia, we may be almost assured that the intestine has become gangrenous.

Part iii., p. 115.

Radical Cure of Hernia.—For several years past the attention of surgeons has been directed to discover a safe and effectual method of obtaining a radical cure of reducible hernia.

A distinguished surgeon of Paris, M. Belmas, devised a plan to obliterate the herniary sac without leaving any wound in the integuments. He proposed to introduce, by means of a canula in form of a trocar, a small portion of gold-beater's skin into the serous tunic of the hernia, which was to be left there so as to excite an exudation of plastic lymph, and thus cause the *trajet* of the hernia to be firmly plugged up. Although a few cures have been effected by this mode of procedure, M. Belmas has more recently substituted for the gold-beater's skin, which he used in his first experiments, minute filaments of animal matter, which he inserts and deposits in the root of the herniary sac by means of a small larding-pin (*lardoire*).

Mr. Jameson, an American surgeon, has reported a case in which he effected a cure in the following manner. The herniary envelopes being divided as in the operation for strangulated bowel, he cut a portion of the integuments in the form of the blade of a lancet, and folded it back upon itself, securing it in the ring so as to plug up its *trajet*. We are not aware that this plan has ever been tried in France; it may indeed succeed, but it cannot be altogether free from danger.

M. Gerdy has proposed another method, which is certainly more safe, but is unfortunately much more uncertain. It consists in pushing up along the inguinal canal a fold of the integuments of the scrotum, in the form of the finger of a glove, and then securing this fold in its new situation by transfixing it with a strong thread by means of a needle contrived for the purpose. This operation has now been performed a good many times; but not only has it failed in several instances, but it has even been followed by fatal consequences in more than one case.

As to the proposal of M. Bonnet, of Lyons, to transfix the sac with several needles to be left in for some days, and that of M. Mayor, to substitute strong threads, like a seton, in place of the needles, M. Velpeau is of opinion, that in neither of these ways can we hope to effect more than a partial closure of the sac, and, therefore, that we cannot count upon a radical cure of the hernia.

In 1836, M. Velpeau tried the effect of iodine injections into the sac of a reducible hernia, and repeated the experiment on two other patients; but the difficulty of reaching the sac with certainty, and the unsatisfactory results obtained in these three cases, are serious objections to the practice; and M. Velpeau himself, in the last edition (1839) of his work, alludes to it without approbation.

During the course of last year, he tried another method in two cases. This consisted of three acts or elements: a subcutaneous incision on the

principles so ably insisted upon by M. Guerin in the surgical treatment of so many diseases, *scarification* of the interior of the sac and especially of its internal aperture, and lastly, *compression* of the entire length of the inguinal canal. The left fore-finger being first pushed into the external inguinal aperture to the depth of half an inch or so, a bistoury is slid along the nail and inserted through the integuments in a direction backward and outward; the finger is then withdrawn, and the cutting edge of the instrument turned against the iliac parietes of the abdomen, and in such a manner as to make numerous scarifications, in various directions, without endangering the epigastric artery: the bistoury is then withdrawn by the small entrance-wound, and the operation is completed.

Part iii., p. 117.

Use of Morphia in Strangulated Hernia.—In the treatment of strangulated hernia various remedies have been used to produce that complete prostration of energy which is often so necessary to accomplish its reduction: but the preparations of opium have generally been omitted; bleeding, the warm bath, tobacco, tartarized antimony, etc., have generally been preferred. Dr. Bell and Dr. Davis have, however, brought some interesting cases before us which show the value of opium, either in the form of morphia or laudanum, in accomplishing the wished-for prostration. Dr. Bell gave half a grain of morphia, and repeated it in half an hour, with the desired effect. Dr. Davis gave a teaspoonful of laudanum, and repeated it in two hours; this second dose was followed by complete prostration of the muscular system, dilatation of the pupil, and the easy reduction of the hernia.

Part iv., p. 96.

Pseudo-Strangulations of Hernia.—M. Malgaigne attacks earnestly the proposition laid down by Pott, "that the operation for hernia is not dangerous in itself," and which has exercised such a pernicious influence over modern principles.

As to the cause of hernia, "authors state that *engouement* from accumulated fecal matter produces it. Is it true, then, that excrements do habitually accumulate in hernia of some standing? There is not, there cannot be hard substances, nor even fecal matter, except in the large intestines; and hernia of the large intestines do not constitute a twentieth part of intestinal hernia. Thus, then, this *engouement* described in books cannot possibly exist in ninety-five cases out of one hundred.

"I have, like all other surgeons, paid a fatal tribute to this fatal doctrine: I operated in a case of pretended *engouement*—there was neither *engouement*, nor strangulation, and the patient died. You will find mistakes of the same kind committed by Percival, Pott, Dupuytren, and Astley Cooper. As to the *engouement* of authors, it is a creation of pure imagination, it is really a hernial peritonitis disguised, which is the accident most commonly supervening in cases of hernia."

As to the means of discriminating between this inflammatory action, and real strangulation, he brings forward the following propositions:

1st. In all old intestinal hernia, which have never been restrained by a truss, or in which the truss has been disused for a long time, there is no real strangulation; the ring or rings being much larger than is required by the size of the pedicle of the hernia. This general fact results from all

the observations which I have made either on the living or the dead. I have found no exception.

2d. In the pure epiploceles of whatever size, it is most frequently either an adhesive or suppurative inflammation, which is mistaken for strangulation.

3d. Consequently in these two cases, when well marked, the operation is always irrational; and, besides taxis at the beginning or end of the inflammation, the treatment should be entirely antiphlogistic. *Part iv., p. 111.*

Treatment of Strangulated Hernia by Copious Injections.—In a former article we mentioned a case of Mr. Maunder's in which that gentleman relieved a case of strangulated hernia by introducing the tube of the stomach pump to a considerable distance up the bowel, so as to give vent to flatus, which was soon followed by a reduction of the strangulation. Mr. A. S. Lawrence, of Clifton, relates a case of strangulated hernia, in which he effected the reduction, not by the tube of the stomach pump, but by injecting four pints of tepid water gruel, followed in an hour by another pint, which had to be injected with some force owing to some resistance: on applying the taxis afterward, the tumor was easily reduced.

We agree with Mr. Lawrence, that to introduce the tube of a stomach-pump twenty-six inches up the rectum and colon, is a rather dangerous operation, as the rectum itself is only about eight or ten inches in length. The distention of the bowels by tepid water is a much safer and easier operation. *Part v., p. 132.*

Strangulated Hernia Treated by Exhaustion through the Elastic Tube.—Mr. Webber, of Orford, relates a case where he succeeded in the way recommended by Mr. Maunder; that he endeavored to produce a vacuum below the stricture by the exhausting power of the syringe. The tumor, which occupied the scrotum, was of the size of a goose's egg, remarkably tense and unyielding, with all the symptoms of strangulation. The taxis was diligently and carefully applied for about twenty minutes without success; the patient was then bled to syncope, and the taxis again had recourse to, followed by the application of cold to the tumor, and such other remedies as circumstances permitted.

A common enema having been previously administered, the œsophagus tube of Weiss' stomach-pump was now passed gradually up until its whole length, about twenty-five inches, had been introduced, the brass extremity alone remaining without.

After waiting a quarter of an hour, between two and three pints of water were thrown up and retained in the bowel for a short period; the cylinder of the pump having been unscrewed from the elastic tube, and the mouth of the latter closed by the thumb, on withdrawing which the fluid repassed in a jet of considerable force. The cylinder was now readjusted to the tube, and the action of the machine being reversed, the piston was worked rapidly with the view of producing a degree of exhaustion or partial vacuum in the intestine; gentle taxis was at the same time resumed, and after the expiration of four or five minutes (during the latter part of which the patient complained of a sensation of bearing down referred to the whole abdominal region), I had the satisfaction to feel the contents of the tumor recede from beneath my fingers, and slip into the abdomen with the usual gurgling which accompanies the return of intestine.

The man recovered without any untoward system. *Part iv., p. 129.*

Injection of Belladonna in Strangulated Hernia.—A woman, aged 66, experienced a swelling in the right groin, during the occurrence of a severe cough: this was followed by pain and tenderness in the part, vomiting, sleeplessness, and pain in the abdomen. Examination showed a strangulated hernia, which could not be reduced.

Dr. Fischer directed injections of belladonna (one scruple of the tincture in each) to be administered. After three clysters the taxis was again employed, and the hernia returned without difficulty. *Part vi., p. 131.*

Decoction of Oak-bark.—Compresses, impregnated with a strong decoction of oak-bark, kept *in situ* by a truss or bandage, suggested to promote contraction of the ring after the reduction of recent inguinal hernia. *Part viii., p. 70.*

Treatment of Strangulated Hernia—Dr. Arnott's Plan.—In addition to the usual treatment, by the taxis, by blood-letting, by the warm bath, cold applications, injections of tobacco, purgatives, and purgative enemata, the exhausting syringe of the stomach-pump, antispasmodics, opium, belladonna, and lastly, by means of dividing the stricture, Dr. Arnott offers for consideration, as among the best and simplest methods of reduction of strangulated hernia, the employment of long-continued pressure of the hernial tumor and the application of cold to it. But neither of these modes have hitherto been perfectly applied singly, or conjointly. If they are so often successful when applied separately in the way which is usually adopted, we think that they may be still more so when applied conjointly in the way recommended by Dr. Arnott. The continued application of cold and pressure will reduce the volume of the gas in the intestine and materially aid in keeping down inflammatory action. It may be accomplished by placing a bladder of water upon the hernial tumor, and keeping up pressure by the hands or some other contrivance; and at the same time by causing a current or constant change of water in the bladder by means of two tubes, one conveying the water to the bladder for a reservoir above, and the other conveying it away to a receiving vessel. The bladder should be confined to the hernial tumor by a metallic or wooden case, in the form of a basin, or by a small flower-pot, of considerably smaller diameter than its own, and having an opening in the center for the passage of the current tubes. By this means the hernial tumor will be completely surrounded by, and imbedded in the bladder, which may be kept at the required pressure by a bandage or truss.

In intussusception, Dr. Arnott has found that rapid mercurialization has frequently been a means of relieving the patient. *Part viii., p. 12.*

Reduction of Femoral Hernia on Dr. O'Beirne's Plan.—We have repeatedly referred to this plan of reducing a strangulated hernia, but every fresh fact in corroboration of it is satisfactory, we subjoin the following case by Mr. Collambell, of Lambeth. It was that of a woman, 51, ruptured twenty-four years ago. All the symptoms of strangulation being present, the taxis being used for a considerable time, and various other measures resorted to without avail, Dr. O'Beirne's plan was tried as follows: The elastic tube of a stomach pump was introduced into the rectum and passed to the distance of twelve inches. The syringe was then attached, and two quarts of warm water slowly injected. In a short time the syringe was detached, and the water was allowed to run off by the

tube. The syringe being reapplied, and its action reversed, Mr. C. continued exhausting the air, when, after a few minutes, the hernia gradually subsided, and by keeping up gentle pressure the contents were returned into the abdomen.

Part viii., p. 154.

Knife for Dividing Strictures.—A small convex, double-edged, moveable knife, concealed within a canula, recommended by Dr. Stewart for dividing the stricture in cases of strangulated hernia.

Part viii., p. 162.

Opium in Hernia.—[The following case, by Mr. J. M. Walker, shows the good effect of opium in hernia:]

I was sent for at 10 P.M., to visit R. H., aged 45, a stout, muscular man, suffering under strangulated scrotal hernia in the right side. He had been trying for an hour to reduce it, having done so frequently before, but now he informed me it was a great deal larger. He was vomiting, and complained on the least pressure. In consequence of the extreme tenderness, I did not persevere in the taxis, but decided on putting him under the influence of opium. I gave him two grains every fifteen minutes, until he had taken six grains, and to use hot fomentations. Shortly after the first pill the vomiting ceased; and when I visited him again, at half-past 12 P.M., I found him, as he said, exceedingly comfortable; it was quite evident he was enjoying all the luxury of an opium-eater. Upon inquiry, he told me he had not touched the swelling, but that it had gone away of its own accord.

Part ix., p. 185.

Treatment of Gangrenous Intestine in Hernia.—In a case of hernia published by Dr. Paul, of Elgin, in which the operation was deferred too long, by the refusal of the patient to submit to it, the different tissues were so thickened from inflammatory action, that it was with much difficulty that the bowel was exposed, and it was then found to be completely gangrenous. The peritoneum was so adherent to the bowel, that on separating them by the most careful dissection, the bowel burst. The opening in the intestine was made sufficiently large, and a warm poultice was then applied to the wound. So soon as the patient rallied from the immediate effects of the operation, epsom salts in small doses were given from time to time, and in the course of the day the bowels were freely opened via the wound. The stomach was now retentive, and, except the formation of an abscess in the scrotum, everything went on as favorably as could be wished. The swelling subsided rapidly, and the wound appeared to contract. Little further treatment was required, beyond keeping the parts clean and regulating the bowels when necessary. Some exuberant granulations required to be kept down by caustic. Ten days after, he felt some desire to have a stool by the rectum, and upon making the attempt, he had a copious evacuation. This desire was encouraged by small doses of the sulphate of magnesia, and he continued to have two or three stools per annum daily. The wound now closed up very fast, and very little feculent matter escaped from it, so that before the end of the thirteenth week the patient began to walk about, wearing a truss. In two weeks more the wound was entirely closed, and the man resumed his work as a groom.

Part ix., p. 187.

Strangulated Hernia reduced "en masse."—[Mr. Luke, in a paper read before the Medico-Chirurgical Society, directs attention to the fact, that in cases of strangulated hernia the mass is sometimes reduced either by the patient or surgeon, and, nevertheless, the symptoms of strangulation still continue.]

It may occasionally happen that a patient has a tumor in the groin, and, not knowing the nature of the case, supposes it to be a hernia, and uses too much force in attempting to reduce it. The consequence may be that the hernia is indeed reduced, and the protruding sac is reduced likewise, without the patient being aware of it. This is called reducing a hernia *en masse*. The cases, indeed, are not very common, but it is necessary for the surgeon to be prepared for them. The tumor, perhaps, may be pushed into the abdomen by the patient himself, and the symptoms of strangulation may disappear. In the cases related by Mr. Luke, they were inguinal hernia, were reduced by the patients themselves, and situated by the neck of the sac in which they were incarcerated. There will be nothing to guide the surgeon but the position of the tumor, and the present symptoms of strangulation; or perhaps the tumor may be incarcerated at the internal ring, which will be slight, and the patient may be coughing and straining the tumor may be brought into the inguinal canal; if this be not accomplished, however, when all other means have failed, and the patient's danger is imminent, an operation of *exploration*, which consists in dissecting down to the internal ring: the finger may then be introduced into the abdominal cavity, to ascertain if any tumor of a suspicious nature exists. In one very interesting case, described by Mr. Luke, was the fact, and the tumor was brought out of the abdomen and found to be a hernia covered and strictured by its sac. The sac was divided, and the patient did well. *Part*

Reduction of Strangulated Hernia en masse.—Since Mr. Luke's case, a case has been noticed by Mr. Wade, of Westminster, of a man seventy-five years of age, had had double inguinal hernia for many years. Symptoms of strangulation appeared, but were not attended externally. Mr. Wade, from slight darting pains in the right inguinal region, and from the hernia descending, was led to suspect that the man had a strangulated hernia *en masse*. He accordingly laid the canal for the right side, and found a membranous band as far as the finger could reach, which on division allowed of the reduction of the hernia. *Part*

Application of Cold Water in Strangulated Hernia.—M. Moreau mentions several cases in which irrigation with cold water was used to reduce the hernial tumors, after the taxis alone had tottered. The first case is that of a woman four-and-twenty years of age, who had a strangulated hernia the result of an effort. The hernia had been reduced, and all the symptoms of the strangulation were present. Not succeeding, a small stream of cold water was made to begin to flow over the tumor. The contact of the cold water produced a general chill, and the muscles of the abdomen contracted; the respiration was momentarily suspended, and in less than five minutes from the time the irrigation was commenced, the hernia was reduced, and returned into the abdomen. The second case was a man of thirty-five, of robust constitution,

labored under inguinal hernia for some years. During defecation, the hernia, which was not restrained by a bandage, escaped and became strangulated. Dr. Boutard was called in eleven hours afterward. The intestine had descended into the scrotum, and formed a considerable tumor. The taxis was repeatedly tried, the patient was twice bled from the arm, and was placed in a warm bath, but all without success. He was then taken from the bath and placed naked on an inclined plane, without being rubbed dry. Whilst shivering from the effect of the cold produced by the evaporation of the water with which he was covered, a stream of cold water was directed on the hernia as before, the taxis being at the same time resorted to. In the course of five minutes, the tumor became softer, its pedicle moved, and it escaped into the abdomen. *Part xii., p. 198.*

Treatment of Strangulated Hernia after Operation.—[Mr. Arnott makes the following useful remarks on the treatment of strangulated hernia, in a clinical lecture upon two cases in which the operation had been successfully performed. Nothing of an aperient nature, unless we call hydrag. cum cretâ such, was given, yet motions followed in due course.]

The old doctrine was, that after the operation for strangulated hernia you could not have too many motions, and, therefore, purgatives were to be administered of active character immediately after the operation, and repeated till their effect was obtained. No doubt it is satisfactory to find evacuations per anum following no long time after the operation, but it is a different question whether we should always take active measures, *i. e.*, give irritating remedies, to obtain these. If your finger was swollen, turgid with blood, inflamed from a ligature having been tied around it, and left there for some hours, you probably would not think, after loosening or cutting this, that the best mode of accelerating the recovery of the part was to give the hand some active occupation, and thereby irritate and excite it. But, on the contrary, you would be more like to keep it quiet, in an easy position and to give nature fair play, to do the best for its recovery. The case is the same with a portion of bowel that has been strangulated, and is in an analogous condition from an analogous cause. Thickened, full of blood, in a state of inflammation, or on the verge of it, a piece of intestine in such a state is not likely to be benefited by rough treatment, *i. e.*, active aperients, irritants. Returned into its natural situation after the stricture has been divided it is best to leave it quiet—to let it alone for some time, to allow the swelling to subside, to allow it to recover. In some cases you must trust to nature alone for the cure; in others it is advisable to endeavor to assist her, by resorting to the means we usually employ for arresting inflammation.

Part xii., p. 198.

Radical Cure of Hernia.—The radical cure of hernia is effected either by causing the closure or destruction of the sac, or by indirectly promoting the closure of the hernial aperture; but Mr. Teale observes, that unless both these effects are produced, little advance toward permanent cure is made. The substitution of a layer of peritoneum across the hernial aperture, affords a resistance so slight, as scarcely to possess any power in preventing a future hernial descent. The use of well adapted trusses promotes the radical cure of hernia, by effecting contraction, or diminution of the aperture in the aponeurotic or muscular structure. The

ciatrix left after the operation of Desault, may, for a time, mechanically prevent protrusion, or allow the aperture to contract; and the operation of M. Gerdy, in which the opening was filled with an organized plug, appears to have succeeded in the same manner.

The means employed for effecting the radical cure of hernia, by promoting closure or contraction of the hernial sac, are, excision of the testicle; incision of the sac; excision, suture, and canterization of the sac; ligature of the sac after incision of the integuments; neupuncturation, and insertion of gold beater's skin in the sac. These operations have succeeded in destroying or closing the hernial sac, but they do not prevent fresh hernial descent.

The best means for promoting contraction or closure of the hernial aperture, are trusses; ligature of the sac and its envelopes; and the cutaneous plug. Trusses should not press too powerfully on the abdominal parietes, or they may produce inflammation or irritation of the part, or the walls of the abdomen may become atrophied; or if the pad be very small and convex, it may produce elongation of the aponeurosis and muscle, and thus weaken the parts. The operation by ligature is attended with considerable pain, and even loss of life. There are two ways of introducing the cutaneous plug—the first, to detach a piece of integument from the neighborhood of the ring, and introduce it into the aperture; the second is effected by drawing the loose scrotal integument into the inguinal canal, and to cause adhesive inflammation between the invaginated integument and the walls of the canal. M. Gerdy retains the invaginated integuments in situ by one or more sutures. Mr. B. Cooper, in performing M. Gerdy's operation, stitched the invaginated skin to the tendon of the external oblique muscle, and brought out the needle an inch or a half above Poupart's ligament; the needle was again passed into the canal, and brought out through the abdominal parietes as before, about four lines distant, and the skin between the two ends of the ligature was thus included and tied over a piece of bougie.

Part xiii., p. 20

Treatment of Strangulated Hernia—Examination and Treatment of the Protruded Intestine.—Mr. Teale goes on to speak of the treatment of the protruded intestine, when hyperhæmic, and says: "There are no degrees of discoloration of the intestine, short of its vitality being extinct, which forbid the replacement of the part within the abdomen." In inflammation, the intestine exhibits various shades of red color, more or less florid, and the vessels are seen to have an arborescent arrangement. When congested, the small vessels may easily be seen of a dark color, or they may be concealed by infiltration of blood beneath the peritoneum. The surgeon has to determine whether the intestine be still living or not.

In order to determine whether the intestine be still living or not, wait a few moments after dividing the stricture, and see whether the discoloration becomes less intense; or press the blood out of the distended vein, and see if they become rapidly refilled. If no evidence of circulation exist, cover the intestine with integuments, or with a moist sponge, and wait a little while; the surface of the intestine may then be carefully and slightly scarified with the point of a lancet, and, perhaps, a slight oozing of blood will take place; if so, however discolored it may be, the int-

times may be returned into the abdomen. Carefully press out the contents of the intestine and then replace it in successive portions; then pass the finger within the abdomen, to determine that no portion of the intestine is engaged within the sac, and also to determine that the protruded knuckle of the intestine is not invaginated within a neighboring portion of the intestinal canal. When gangrene has taken place, and is general, make an incision through the whole length of the gangrenous portion, and leave it to slough away. This opening allows the contents of the upper part of the canal to pass away; but if this does not take place without dividing the stricture, this must be done with as little disturbance as possible. The wound must be left open, to facilitate the free discharge of matters, and simply dressed with wet linen, frequently renewed. Mr. Travers does not recommend division but dilatation of the stricture. Sir A. Cooper divided the stricture generally. Mr. Key also advises it. Brasdor's practice of excising the gangrenous parts and uniting the divided extremities by suture, is universally abandoned. Recent adhesions, if there be no gangrene, are to be destroyed by the finger or handle of a scalpel—adhesions of two coils of intestine is also to be treated in this way.

It is recommended by some practitioners, as Mr. Key, to return the bowel without cutting into the sac, as there is less danger of peritoneal inflammation afterward. The objection to this practice is the possible gangrenous condition of the bowel, many of the symptoms of which are equivocal, so that it is the best practice, after all, to open the sac. The great mortality attending these operations has been increased by improper after-treatment, as the early exhibition of purgatives.

Part xiii., p. 249.

Enterotomy of the Small Intestine.—M. Maisonneuve has adopted a mode of practice which is calculated to save the lives of many subjects of strangulated hernia, who would otherwise perish. It frequently happens after the operation for hernia, that the strangulated portion of intestine, when released from stricture and replaced within the abdomen, is incapable of resuming its functions; symptoms of obstruction continue, and the intestine above the part strangulated remains in a state of tympanitic distention. M. Maisonneuve, having operated upon a patient for strangulation of the small intestine, found, five or six hours after the operation, that the obstruction was unrelieved. He separated the agglutinated edges of the incision, and, passing his finger into the abdomen, felt a distended coil of small intestine, adherent by false membrane to the surrounding parts. Without materially disturbing the adhesions, he seized the distended coil of intestine with the forceps, and by means of probe-pointed scissors established an opening in it, through which the intestinal contents were freely discharged. The urgent symptoms were relieved, and the patient recovered.

Part xiii., p. 254.

Hernia—Strangulated.—Lay the patient upon a hard mattress with no covering but his shirt; keep the room quite cool, and employ cold applications to the tumor. Give tartar emetic in such doses as to produce great nausea or vomiting, and then use the taxis gently for a few minutes and repeat it at intervals. If this treatment does not succeed in four or five hours, operation should at once be resorted to. The great danger consists, not in the operation itself, but in postponing it too long.

Distinguish between true strangulation and inflammation, or pseudo-strangulation. If the taxis is not successful, place in a bath, give a tobacco injection, and put a cataplasm on the tumor; apply leeches if necessary. When inflammation declines, again have recourse to the taxis.

Part xv., p. 21.

Some obscure Forms of Hernia.—There are several cases in which strangulation exists as the result of a hernial protrusion, but which are unremediable by the ordinary operation. The first is that of "reduction en masse;" where the strictured sac and its contents have been returned together through the internal ring. Here the internal ring is to be excised and dilated until the sack is seen, lying between the fascia transversalis and the peritoneum; the sac is then to be drawn down into the canal, and the ordinary operation performed. The two other forms are more obscure, and less amenable to treatment. In one, there is a reducible inguinal hernia, but the sac is prolonged into the abdominal cavity, where it forms a pouch, or as it were a second sac contained between the fascia transversalis and peritoneum. The inguinal canal is unusually long, the internal ring is found quite free and of large size, and the finger is passed through it into the abdominal cavity. These symptoms may lead to suspicion of the state of the case, for which, of course, no further operative measures can be adopted. The third form depends upon the existence of an old irreducible epiplocele: the omentum, as it approaches the internal ring, becomes contracted into a firm unyielding cord, and when a fresh intestinal protrusion takes place, a portion of intestine may become incarcerated by this cord within the abdomen.

Part xvi., p. 10.

New Treatment for Strangulated Hernia.—Place the patient on his back, with the thighs well flexed; desire him to empty the lungs as much as possible, and then, while an assistant holds the nose and mouth to prevent inspiration, make gentle pressure over the tumor.

Part xvi., p. 10.

Hernia—Strangulated.—Whenever there is any suspicion that the bowel or omentum is in a state of gangrene, the sac must certainly be opened, otherwise the division of the stricture external to the sac (Pott's operation) should be practised.

* * * * *

In operating for hernia, after determining the seat of stricture, instead of cutting down on the tumor, make the incision directly over the point where the stricture will have to be divided. Thus not only will the tumor be opened, but the tumor not interfered with. The method is applicable to hernia of all species. But whenever organic disease exists, open the sac and leave a free passage for discharges.

Part xvii., p. 10.

Observations on Femoral Hernia.—[Mr. Cooper makes the following remarks with reference to some of the difficulties met in cases of femoral hernia. He says:]

In the first place, be most cautious in your diagnosis, and however certain you may feel as to the true nature of the tumor, always commence the operation rather with the deliberation of one about to enter upon a hazardous exploration, than with the confidence only admissible under circumstances of indisputable certainty.

Although it is easier to distinguish a femoral than it is an inguinal hernia.

yet there are abnormal conditions relating to the seat of femoral hernia, which complicate its diagnostic marks. An enlarged gland in the upper part of the thigh concomitant with sickness and obstruction in the bowels, may offer great difficulty as to the mode of proceeding. If, under these circumstances, the symptoms be of recent occurrence, internal remedies may be first had recourse to, and the taxis employed; but should the obstruction have existed for a considerable length of time, and the patient be consequently in danger, an exploring operation should be no further delayed. Supposing an enlarged gland be exposed, it should be removed, and the investigation continued; for it is very probable that, under the described circumstances, a hernial tumor may yet be discovered behind the enlarged gland. Sir Astley Cooper mentions a case, in his published lectures, of a patient being admitted into Guy's Hospital, with a strangulated femoral hernia, to which he had a poultice applied for three days, under the supposition that it was a bubo.

When the operation was performed, the intestine was found in a state of gangrene, and the patient died. Another case is mentioned, in which a surgeon not only poulticed, but also opened a femoral hernia, believing it to be abscess, and the patient died two days after. I witnessed the same mistake in Norwich, several years ago, but in that case the patient survived, and the artificial anus proved only a temporary inconvenience.

Psoas abscess and femoral hernia may coexist, and should exploration be necessary from the continuation of hernial symptoms after proper remedies have been ineffectually administered, the surgeon is not only justified, but bound to investigate the nature of the swelling by surgical exploration. Varicose veins, or tumors of any kind in this region of the thigh, may lead to the necessity for similar treatment as in the cases alluded to. I must again also caution you, not to confound inguinal with femoral hernia; for, if in either case the one be mistaken for the other, neither the force employed in the manipulation by the taxis, nor the surgical operation for the division of the stricture, will be applicable to either indiscriminately.

In making the first incision, without due caution you might easily wound the saphena major vein; you should therefore always previously ascertain the precise position of that vessel. Immediately under the skin you may meet with some difficulty, in consequence of the presence of enlarged absorbent glands, which may require to be removed to enable you to prosecute the further steps of the operation. The fascia superficialis you will also sometimes find much thickened, at others much attenuated, and you should be prepared for this variation, or you may in some cases hardly recognize the structure when exposed to view, and may go on dividing the fascia into several layers, so as to complicate the operation, and preclude the possibility of knowing how far you have proceeded. The laying open the sheath of the femoral vessels is in all cases a difficult part of the operation, as that tissue is not very easily distinguished, either from the superficial fascia, or from the hernial sac. Usually, however, a large vein will be found between the sheath and the superficial fascia, and some fat between the sheath and the sac (the peritoneum), but where neither the one nor the other be present, great caution is required. The division of the stricture is very embarrassing to a young operator, from the great depth of the constriction, and in passing the director under it, it must be

pushed deeply backward in the thigh, before it is directed upward and Poupart's ligament. In femoral hernia I have found the division of the stricture external to the sac more frequently effective than in inguinal, but it requires some caution in pushing the contents of the sac into the abdomen, that the sac and contents do not all go up together ("en bloc") and thus at once convert an external into an internal hernia—a result which would most probably terminate fatally. I once had this misfortune occur to me, and the post-mortem examination proved the fact—even the common application of the taxis only, it has been known to result. Compelled to open the sac, you will generally find that a considerable quantity of fluid escapes, sometimes before, but more frequently after the stricture has been divided. I have seen so much flow out as to give rise to some apprehension that the intestine had been wounded—an accident more likely to occur in femoral than in any other species of hernia.

Part xviii., p. 11

Operation for Hernia according to Mr. Gay's Method.—[This was a case of femoral hernia in a female. After the strangulation had existed somewhat less than twenty-four hours, the use of the taxis, aided by the application of ice to the tumor, and a purgative enema, having been ineffectual, Dr. Catherwood operated. He says:]

I began the operation, after chloroform had been exhibited, by making an incision, about an inch in length, between the tumor and the spine of the pubis, obliquely, from above downward, and from without inward, the highest point of the incision being over the inner part of the femoral ring. After completely dividing the superficial fascia, the tip of the finger was readily passed to the angle between Gimbernat's ligament, at the neck of the hernial tumor, and a section of the edge of the ligament made with a concealed bistoury. A few fibres were now found to be the tumor, which were divided by bringing the edge of the bistoury directly forward. By making a very gentle pressure on the sound side the rupture immediately returned. The whole operation occupied but a very short space of time. Within ten minutes the bowels were moved and their action continued at short intervals during the night.

Observations.—This mode of operating possesses such great advantages over the commonly adopted method, that it only requires to be thoroughly known and understood, to receive the sanction of the profession.

Part xviii., p. 11

Obstructed Hernia.—The affection under consideration is of a very insidious nature, and its symptoms are not very well marked. In comparison with other forms of hernia, we have obstructed bowels, a tympanitic abdomen, and more or less vomiting; flaccidity of the tumor, and absence of pain are more characteristic symptoms. Mr. Gay thus gives the diagnosis:

Briefly, then, obstinate constipation, low vital powers, an old and irreducible hernia in an unusually flaccid and painless state, are the positive indications of an "obstructed hernia." What is to be done? No delay should be suffered when these symptoms coexist. The hernial tumor should be cut down upon, the incarcerated bowel relieved, if necessary by the breaking up of the adhesions, and the patient's strength revived by the administration of stimuli.

Part xix., p. 12

Management of Hernia—Strangulated.—Choose the operation by opening the sac. This practice does not increase the danger, as the peritoneum may be wounded with impunity, and peritonitis is a comparatively rare cause of death after hernia operations; whilst there are important advantages to be derived from exposing the intestine.

Always open the sac freely; and, after the operation, pass the finger into the abdomen, and examine it for some little space within the stricture, to be sure that the intestine is free.

Always open the sac. Section of the peritoneum is not dangerous, but on the contrary, beneficial; and if the sac is not opened, strangulation will sometimes not be removed by the operation, the sac being returned as well as its contents.

Always divide the stricture outside the sac in the first instance; the latter can afterward be opened if found necessary. Do not make lamellar separations of the fascia, and do not wound more tissues or go deeper with the incision than is absolutely necessary; and especially avoid interference with the hernial tumor and its envelope, if possible. Make a small incision, large enough to admit the finger, through the skin and superficial fascia on the inner side of the tumor; and through this reach the seat of stricture and divide it, touching the sac only at the constricted point.

Never open the sac, except when compelled to it; for the object of the operation may be effected, nine times out of ten, by dividing the stricture external to the sac; the process is less severe and the result more successful than by the old method, and, with moderate care, there is no danger of pushing back the sac together with its contents. The objection that gangrenous intestine or omentum may thus be returned into the abdomen will hardly hold good; for when the contents of the sac are in this state, it is scarcely possible to return them without the exercise of such force as we know to be unjustifiable. And if a portion of intestine is in a doubtful state, i. e., not actually perforated, but likely to become so, the safest place for it is in the abdomen. After an operation for hernia, keep the bowels quiet for some days by means of opium; to which calomel may be added, as it maintains the healthy functions of the skin, liver, and kidneys, and renders it easy to unload the bowels by mild means.

Irreducible Omental.—Adopt every means to get it reduced; and if the patient cannot spare the time, or will not undergo the discipline necessary for starving out a portion of protruded omentum, and rendering it capable of being returned into the abdomen, recommend an operation. The ease and safety which attend Petit's operation, will justify us in doing this.

Part xx., p. 134.

Ascending or Intermuscular Hernia.—A hernia, Mr. Luke observes, is liable at its exit from the abdomen, to be pushed aside, or have its course altered, by any opposing obstacle; for its tendency is always to pass in that direction in which it meets with least impediment to its course. Such impediments do occasionally arise, and more particularly in the female; a circumstance attributable to the lesser anatomical development of the

canal and external ring in that sex, from which probably proceeds the more frequent occurrence of this form of hernia. In the male sex the canal and rings are sufficiently large to allow of a hernial descent, so that we continually observe that the direction of an inguinal hernia in the male is downward, unless it be turned aside, or its direction altered by artificial means, and especially by the pressure of a truss. In the female, however, natural obstacles occur in the downward direction; it therefore sometimes happens that the lesser impediments to the progress of a hernia lie in an upward or outward direction, in which case the tumor, after passing from the internal ring, turns toward the ilium, and becomes interposed between the layers of abdominal muscles above and on the outside of the ring. Such herniæ are covered anteriorly by the internal oblique muscle, and bear nearly the same relation to the tegumentary surface as an ordinary hernia confined to the inguinal canal, but differ materially from it in its relation to the internal ring. The tumor lies nearer to the ilium in the form of hernia, in a position which, being not usually occupied by hernia, may give rise to some difficulty in diagnosis, and may, through inadvertence, be mistaken for some other disease, either of the caecum on the right, or colon on the left side. It also lies somewhat buried, when cut under a covering of muscular structure, and occasionally under an accumulation of adipose tissue, and may on that account be passed over altogether without notice. In its position it constitutes the kind of hernia named above.

Part xxi., p. 21.

Hernia.—The following conclusions of a practical nature from attentively investigating the varieties of arterial distribution in relation to hernia, have been arrived at by Dr. Redfern. In inguinal hernia, divide the stricture upward. The risk of hemorrhage is greater in operating for femoral than for inguinal hernia. Divide the stricture of a femoral hernia inward, or upward and inward. Divide as few fibres as possible, avoid a sawing motion; and press the edge of the knife rather less on the anterior surface than directly on the edge of the fibres constituting the stricture. If the structure of the neck of the sac is divided upward the spermatic artery may be wounded, and the testicle lost.

Part xxii., p. 2.

Hernia—Strangulated.—The following plan was resorted to before operation in a case under Dr. Wise: The patient was placed upon a table and a long sheet folded several times on itself carried round the lower part of the abdomen of the patient, was twisted on itself in the middle and again on the sides, so as to enable an assistant standing on each side of the patient to hold the extremities of the sheet and to pull the bow gently upward or toward the patient's head, while a third assistant held the feet steady and the surgeon used the taxis. The plan succeeded perfectly, and may be safely resorted to in an early period of the hernia.

Part xiv., p. 1.

Strangulated Hernia.—In a case of strangulated femoral hernia in a female, Mr. Ferguson did not make the Y-shaped incision as is usual over the tumor, but he made a straight cut, about one and a half inches long over the inner side of the hernial tumor, almost directly over Gimbernat's ligament, which he wished to touch. He did not care whether he saw the sac or not, but sought for the ligament, and having divided it, with a li-

pressure the contents of the sac receded. For this simple plan, the profession is indebted to Mr. Gray, of the Royal Free Hospital. There is often more danger incurred by the taxis than by the operation, because we do not know what pressure the parts will bear without serious injury.

Part xxvi., p. 176.

Hernia.—The rule of practice should be that in cases of strangled hernia the parts should be freed with the least possible delay. The taxis should not be resorted to where constitutional symptoms have manifested themselves, or in those cases where the local pain or tension show the encroachment of lesions, which, if unchecked, must prove fatal; or, lastly, where strangulation has been protracted beyond a few hours.

Part xxvii., p. 139.

Permanent Cure of Reducible Hernia.—The contents of the hernial sac being returned into the abdomen, and the ring explored to ascertain that no portion of the intestine protrudes, the pad of a well-fitting truss is slipped down so as to make pressure on the inguinal canal, and prevent any escape of the hernia. With the forefinger of the left hand the spermatic cord, as it passes out from the external inguinal opening, is pressed upward on the pelvic bone, so as to prevent it from being injured. A delicate trocar and canula, the latter having fitted to it a small Anel's syringe, is now carefully but firmly forced through the integuments with a rotatory motion to facilitate its progress, and pushed forward till it enters the external inguinal ring or neck of the sac. The trocar being now withdrawn, the canula is kept firmly in place, and twenty or thirty drops of the tincture of iodine, tincture of cantharides, or sulphuric ether, thrown in and lodged in the neck of the sac, when this is practicable, or else in the vicinity of the external abdominal ring. Subsequently to the operation, a small compress is applied over the minute wound made by the trocar, the pad of the truss slipped down over it, and the patient directed, for a week or two, to maintain the recumbent position.

In addition to the injection, in some of the operations, a tenotomy knife was previously introduced, and the internal surface of the neck of the sac scarified. The wound made by the knife in these cases much facilitated the subsequent introduction of the trocar, which is with some difficulty worked through the integuments.

In no instance did any bad result follow the operation—the pain and inconvenience hardly amounting to that presented in a case of hydrocele treated by injection, or in any simple operation.

Part xxviii., p. 181.

Chloroform and Taxis in Hernia.—Mr. Savory, tutor at St. Bartholomew's Hospital, records four cases, in which, though the taxis at first failed to reduce the hernia, yet, under the influence of chloroform, the taxis being again applied, the reduction was easily made.

Part xxviii., p. 184.

Scrotal Hernia.—In describing an obstinate case of this kind, Mr. Hilton remarked that the main obstacle to reduction was the loaded condition of the blood-vessels of the protruded part. This was to be obviated by, first, decreasing the quantity of the circulating medium generally, by purgation, diuresis, and abstinence from fluids; and, secondly, by local means to constrict and unload the congested vessels of the incarcerated omentum, as by the recumbent position and the application of pressure and

of cold. It may be remarked that cold, by producing contraction of the dartos, affords the best and most uniform pressure which can be exerted.

Part xxviii., p. 18.

Hernia—Inguinal.—The evidences of a hernia having been reduced *en masse*, are: 1st. The signs of strangulation continuing after the apparent reduction; 2d. The loss of the hernial sac; 3d. A feeling of fullness at the internal ring, and of an ill-defined firm swelling in the abdomen behind or below the ring; 4th. A disproportionate amount of pain in this part to that which exists in the other part of the abdomen; 5th. The usual drawing up of the testicle.

Part xxx., p. 21.

Opium and Emetic Tartar.—In strangulated hernia, if you use opium do it promptly and decidedly; give the following pill at once: Morphine muriatis, antim. potass. tart., of each one grain; and give a quart of this dose every fifteen minutes for four doses. Then, if necessary, put the patient into a warm bath and attempt the reduction.

Part xxi., p. 12.

Laceration of the External Abdominal Ring in the Reduction of Hernia.—A new method of reducing inguinal hernia has been invented by M. Seutin, of Brussels. He proposes that the external abdominal ring should be enlarged by being lacerated under the skin by the index finger.

In ten cases in which the taxis had failed, M. Seutin ruptured the external pillar of the ring, and immediately the reduction of the protruding intestine was effected.

Part xxi., p. 14.

Value of Cough-Impulse as a Symptom of Hernia.—The cough impulse may be a valuable diagnostic sign. If there be no effect on the hernia by coughing, you may expect that the stricture is tight. If impulse be felt in the upper part of the neck of the tumor, and not in other parts, the seat of the stricture may be accurately determined, being just below the spot where the impulse is felt.

Part xxxi., p. 15.

Femoral Hernia.—When you have been obliged to open the sac, you may form the best prognosis by an examination of the bowel immediately above the constriction. If it be of a pale reddish-grey color, and feel thin and fleshy, the chances are in favor of a successful result; on the other hand, if it be of a bright pink color, appearing thin as if distended with air, and if there be a large escape of red or dark-colored serous fluid on opening the sac, the prognosis is most unfavorable. In all cases when the sac is opened it is a good plan to draw down an inch or two of the bowel, especially when the strangulation has been of long duration, for in such cases perforation not unfrequently occurs from half an inch to an inch above the constriction.

Part xxxii., p. 16.

Strangulated Hernia.—When operating in these cases, let it be your rule to endeavor to relieve the stricture without opening the sac; you gain nothing by opening it, but you may lose a great deal by doing so without necessity for it; in some cases, however, there may be reasons to deviate from it, as when the stricture is internal to the sac, etc.

Part xxxiii., p. 18.

Mode of Performing Taxis.—Draw the body of the tumor gently down with one hand, and with the thumb and two or three fingers of the other steadily compress the neck of the hernia, with the view of causing the co-

tained fluid to pass into the intestine above the swelling. When gurgling is heard, or when, from the sensible diminution in the size and tension of the hernia, there is reason to infer that the passage of fluid has commenced, then, at the same time, keep up gentle pressure on the body of the tumor without pressing it upward, and the possibility is that the contents of, and then the hernia itself will be reduced. If the body of the tumor is not drawn somewhat downward and kept so, the part of the gut (and the neck around it) just below the lower orifice of protrusion, will be forced up, and doubled a little on itself against the borders of the opening, and injury to the intestine and failure in reduction be the probable consequence. If this plan be found not to succeed after one carefully-conducted trial, it will rarely be found to answer after many, and an indication is then given for the performance of an operation, as delay will but complicate the case, and further endanger the life of the patient. It may seem absurd to assert or insist on so obvious a truism, but the gloomy part of the records of surgery bears much painful testimony to the neglect of this precept, that the propriety of operating early, without persisting in the taxis, cannot be too strongly enforced and too clearly illustrated. *Part xxxiii., p. 185.*

HICCOUGH.

Hiccough treated by Quinine.—Among the many anomalous and not unfrequently very obscure, results of miasmatic influence, are various affections of the digestive organs. Of these, hiccough is a most troublesome and occasionally a very intractable one. In some cases, this gastric disorder has been observed to exhibit a distinctly intermittent character, and to be associated with the existence of other phenomena which are usually attributed to the operation of the same morbid cause. M. Mendière has published, in the pages of the "Revue Médicale," several cases of this sort, in which the distressing symptom of hiccough was promptly and decisively cured by the free use of quinine, after it had resisted every other mode of treatment. He has used the same remedy with good results in many cases of severe cardialgia.

[The addition of a few drops of tinct. opii to the quinine will greatly enhance its efficiency in such cases.

We have usually found the liquor opii sedativus the best form in which to exhibit it: this may be given in a bitter infusion, to which ammonia may generally be added with advantage at the same time.]

Part x., p. 73.

Use of Chloroform in Hiccough.—In the case of a gentleman, forty-six years of age, of weak constitution, and highly nervous temperament, M. Latour employed chloroform during a very severe attack, which had lasted during three hours, the convulsions of the diaphragm occurring at intervals of six or eight seconds. A bottle containing chloroform was applied to the nostrils, and removed after a few inspirations. At the first removal, a temporary cessation was produced, and three applications of the chloroform bottle entirely put a stop to the paroxysm.

Part xix., p. 88.

Hiccough.—Preparations of dilute sulphuric acid will be found to act beneficially with great promptitude, in the most obstinate cases.

Part xxi., p. 361.

HOARSENESS.

Inhalation of Ammonia Gas.—[The inhalation of gases is, perhaps, so much neglected in particular diseases. At present we know but little respecting the properties of gases upon the animal economy, but when we remember the rapidly deleterious effects of the vapor of hydrocyanic acid, of bromine, of sulphureted hydrogen, we may suppose that there may be other gases which might act medicinally and beneficially. Mr. Simon has forwarded the following paper respecting the use of ammonia gas for stimulating the mucous membrane of the mouth, fauces, trachea, and bronchi.]

If a bottle, containing a solution of the gas, as the common liquor ammonia or hartshorn, be opened, part of the gas escapes. If this comes in contact with the conjunctiva, it stimulates it, and causes much fluid to be poured from its secreting surface, and its influence on the delicate lining membrane of the nasal cavities is not less powerful. In fact, this vapor appears immediately to cause a secretion of fluid from the parts with which it comes in contact.

When this gas is absorbed by the mouth in far larger quantities, it appears to cause in a similar manner an increase of the watery part of the secretion, usually passing from all the several parts with which it there comes in contact. *A priori* it might be expected the glottis would resist the intrusion of the gas, but this is by no means found to be the case when in a diluted state, as it apparently readily passes into the innermost recesses of the lungs, and instead of producing disagreeable effects, causes sensations which are extremely grateful and agreeable.

The immediate effect of the inhalation of this gas is to cause the fauces and pharynx, before dry, and perhaps covered with inspissated adherent mucus, to force out a watery fluid to lubricate and relieve the membrane; the phlegm will then separate and come away, and a more or less instantaneous relief is frequently felt.

The most convenient mode of administering the ammoniacal gas is to use the vapor that spontaneously exhales from solutions of ammonia. Of this it is preferable not to employ a solution stronger than the liquor ammonia of the shops, or weaker than the same diluted to twenty or thirty times a quantity of water.

The liquor ammonia, diluted according to the discretion of the medical attendant, may be placed in a common vial, and as much should be inserted as to occupy about the two lower inches of the bottle. The patient has only to apply his lips to the mouth of this homely contrivance, and draw in his breath, when he will inhale a certain quantity of the ammonia.

The number of inspirations to be taken at one time may be determined by the strength of the water and the effect of the remedy. Two, three, or four inspirations will, in general, be sufficient at one time, but this must be repeated three or four times during the day.

The value of the local application of this gas is seen in cases of what is called dryness of the throat.

Ammonia gas is also beneficial in chronic hoarseness, especially in that which is often left as a sequel of influenza. This gas affords great relief and comfort to the relaxed, swollen, and apparently semi-œdematous state of the mucous membrane, which supervenes from remaining in crowded, overheated, and ill-ventilated rooms, where every person not only inhales

his own breath over and over again, but is under the infliction of breathing his neighbor's also. In cases of incipient cynanche tonsillaris, it appears to be of much value if used at the very commencement of the attack.

There are occasionally cases of syphilitic ulceration of the throat witnessed, where the patient suffers from such debility that the practitioner is afraid of applying any remedy capable of depressing the system, where the inhalation of the gas might probably be of great service.

In old standing cases of asthma, in which the extremities are cold, the pulse feeble, and the general vital powers depressed, the local application of ammonia is particularly grateful, the patients feeling, as they describe it, a glow after its exhibition, and the warmth first imparted to the lungs extending by degrees over their whole system.

In cases where the patient feels a peculiar sense of contraction upon passing into cold atmosphere, as though the lungs resisted the intrusion of so unpleasant an agent, the inhalation of ammonia seems to quiet the spasmodic action.

As a stimulating agent it must obey the laws of stimulants generally. It should not, therefore, be employed when the part with which it comes in contact is inflamed, nor when a dry parched tongue, a full pulse, and a dry skin, denote a feverish system. In all chronic cases, or even occasionally in acute cases, with a feeble circulation; in fact, whenever the system is depressed, and stimulants are advisable, the inhalation of ammonia may be used with the greatest advantage and comfort to the patient.

Part vii., p. 64.

HOOPING COUGH.

Diuresis—Recommended as a revulsive in diseases of infants.

Part i., p. 24.

Assafetida in Hooping Cough.—It is indicated only after the febrile period has passed, and its influence is diminished in the third stage, when tonics should be combined with it. As assafetida is a medicine which it would be very difficult to induce children to take by the mouth, Dr. Ricken prescribes it in enemas—he orders three grains of the gum resin to be rubbed up with a sufficient quantity of yolk of egg, and mixed with 125 to 250 scruples of water. This mixture will suffice for ten or twelve lavements for children under a year old; for from four to six for children three years old; and for two or three only for those that are older. For the first five or six days, two enemata are given daily, sometimes more; after that, one at night will be sufficient. If diarrhœa should come on, it may be stopped by increasing the quantity of the yolk, and by adding starch or gum arabic; olive oil should be added if tenesmus should supervene. The use of the assafetida is very well borne by children of a strong constitution, and still better by those that are nervous or lymphatic.

Part vi., p. 86.

Ioduret of Silver.—Recommended in hooping cough in the form of pills, containing from one-eighth of a grain to one-fourth of a grain, three times a day.

Part vii., p. 81.

Various Remedies for Hooping Cough.—The following is Dr. Cowan's epitome of the experience of the best writers on *hooping cough*.

The popular and professional catalogue of remedies for whooping cough is both lengthened and varied, proving the usually obstinate nature of the disease.

Dr. Thompson considers prussic acid his sheet anchor, gradually increasing the dose, and combining carefully regulated temperature with milk and vegetable diet. He says the disease seldom resists more than four to five weeks.

When the acute symptoms have subsided, the following extensively used formula of Dr. Beatty, of Dublin, recommended by Dr. Graves, has proved very useful :

R Compound tincture of bark, five ounces ; tincture of lytta, tincture of camphor, of each half an ounce. **Mix.** A teaspoonful three times a day in linseed or barley tea.

Above five or six years of age the dose may be increased one-third daily until half an ounce is taken.

The liquor arsenicalis, in decoction of bark, is favorably mentioned ; and in the second volume of the "Provincial Transactions," p. 412, a combination of the tincture of lytta with the tincture of lobelia, is stated to have proved successful.

Belladonna, by liniment, plasters, and internally, is undoubtedly a valuable agent.

Dr. Lombard, of Geneva, mentions as a sure symptom of the decline of the disease, the greater frequency of accesses during the day than night, and *vice versa*. He speaks highly of the sesqui-oxide of iron in diminishing the number and violence of the fits, giving twenty-four to thirty-grains a day in divided doses.

Dr. Crossley Hull's great remedy, in all cases, was powdered alum which he prescribed in a little water eight times a day, beginning with ten grains, to be increased two grains each dose till twenty are reached, which was then continued till the cough had ceased, which he states was the case generally in a week or less. The above doses are for young persons, about fourteen ; adults may increase the dose to twenty-six grains. Infants are to begin with four or five grains, increasing two grains a day to fifteen. No other medicine was given ; milk to be avoided.

Dr. Reese strongly advises a warm irritating plaster to the chest, and the following medicine :

R Tincture of assafœtida, one drachm ; tincture of opium, ten minims ; powder of ipecacuanha, ten grains ; water, two ounces. **Mix.** A teaspoonful every three hours to a child two years old, increasing the dose ten minims for every year.

When this fails, the two following formula are (too) highly praised :

R Powdered leaves of conium, one scruple ; mint water, two ounces ; sirup, two drachms. **Mix.** A teaspoonful three times a day to a child of any age, adding ten minims to the dose, till nausea and giddiness are felt.

R Di-acetate of lead, four grains ; sirup of poppies, two drachms ; fenel water, two ounces. Two teaspoonfuls to a child from two to ten years every five hours ; half an ounce for an adult.

It is said to cure generally in three days.

Mr. C. H. Chavasse speaks highly of the following formula :

R Sulphate of copper, half a grain ; sirup of poppies, half an ounce ; anise water, an ounce and a half. **Mix.** A teaspoonful to be taken every second or fourth hour, according to the age.

Sir William Watson's celebrated prescription was :

R Tartar emetic, one grain ; tincture of opium, twenty minims ; distilled water, one ounce. *Mix.* A teaspoonful every, or every other night.

Mr. Pearson, after premising an emetic, relied much upon—

R Tincture of opium, one minim ; ipecacuanha wine, five drops ; carbonate of soda, two grains ; water, half an ounce. Make a draught, to be taken every four hours.

Dr. C. Wachtl, of Vienna, has found cochineal very useful in rapidly checking the paroxysms.

R Cochineal, ten grains ; bitartrate of potash, one scruple ; sugar, one ounce ; water, six ounces. A teaspoonful every four or six hours.

It is an old and popular remedy.

The following is Roche's far-famed embrocation :

R Olive oil, one ounce ; oil of cloves, half an ounce ; succinum oil, half an ounce. *Mix.* *Part viii., p. 22.*

Cochineal in Hooping Cough.—[The following is recommended by Dr. Alcott. He has employed the same remedy for 20 years in hooping cough with success. He says:]

A peculiar acid is generated in the system by the disorder, which may be detected in the excretions from the stomach, and which, in my opinion, is the exciting cause of the spasmodic action of the glottis, producing the "whoop." It is obviously desirable, therefore, to neutralize this acrid condition of the first passages, in order to obtain the full advantage of the antispasmodic and anodyne properties of the cochineal ; and for this purpose the *alkaline solution* is invaluable. It is of a deep purple or violet hue, will keep a long time without change, and the active powers of the cochineal are not impaired by the combination. The following is the form :

Take of carbonate of potassa, a drachm ; cochineal, a scruple ; boiling water, eight ounces. The dose is a teaspoonful three times a day.

Part ix., p. 68.

Belladonna and Ipecacuan.—Recommended in hooping cough, in the form of pill, containing one-fourth of a grain of extract of belladonna, and half a grain of ipecac, in each—every two or three hours.

Part ix., p. 75.

Hooping Cough—Opinions respecting.—The views of different medical men on the nature and treatment of hooping cough seem to be exceedingly variable. Many different opinions have been published on this subject. Most practitioners seem to agree that in the early stages of the affection we have inflammation of the lining membrane of the air tubes, which may extend more or less throughout the whole lungs ; and hence, whether we regard it as of a specific character or not, the treatment, in the first place, ought to be more or less antiphlogistic, as in the early stage of bronchitis or pneumonia. The par vagum seems to be implicated in the affection, and the irritation of this nerve may account for some of the most troublesome symptoms.

With reference to the irritation of the par vagum in hooping cough, Dr. T. Thompson relates a case in which this nerve had become exposed, from the formation of an abscess, or other cause ; and it was remarkable, that

when the nerve was in contact with air, a spasmodic action resembling hooping cough was produced; when the nerve was covered over by a cicatrix, the hooping cough ceased.

When the acute symptoms have subsided, the great object of practice is to subdue irritation and improve the general health; and it is in this that such a variety of remedies have been proposed. Dr. Walker gives the twelfth of a grain of extract of belladonna three times a day to a child four years old. We suspect that this will prove an uncertain remedy, not free from danger in very young children. Opium ought never to be given, even as a palliative, as its remarkable effects in causing congestion of the mucous membrane of the lungs will inevitably prolong the disease, however pleasing the first effects in allaying the cough may be. It is possible, however, that the counteracting or neutralizing properties of small doses of tartar emetic or ipecacuanha, may render this a more warranted remedy in extreme cases. The irritating cough may frequently be relieved by conium, hemlock, or hydrocyanic acid; and we ought never to forget the remarkable property of the alkaline medicines, as potash, of relieving the irritability of mucous surfaces. When a great quantity of mucus is secreted, Dr. Golding Bird recommends alum to be given. This should only be used, however, in the second or nervous stage, characterized by a nervous cough with bronchial flux, unaccompanied by febrile action; we may probably find that the acetate of lead, as recommended by Henderson (*Vide Art. "Bronchitis"*), may here be useful, where the secretion is excessive. Dr. Golding Bird, however, finds alum the most efficacious; he gives it in doses of from two to six grains to children from ten years old, repeated every four or six hours.

For a child of two or three years, the following formula has generally been employed:

Alumina, gr. xxv.; extracti conii, gr. xij.; sirapi rhæodæ, ʒij.; aquæ anethi, ʒiij. M. Capiat coch. j. med. 6tâ quaque hora.

Tannin is recommended with a somewhat similar motive. It may be given, after the acute stage is passed, in doses of a quarter or half a grain every two hours, with a dose of conium. Sir G. Lefevre recommends muscivorus as having some specific influence in the spasmodic attacks of this disease. He gives it in doses of a grain three or four times a day; and states that in a few days it will often arrest the most convulsive species of coughing.

Part xi., p.

Tar Vapor in Hooping Cough.—[Mr. Waddington recommends in the treatment of hooping cough, a remedy which is, to say the least, cheap and easily applied. He says:]

There are three stages of hooping cough. In the first stage, the patient should be taken into the open air, as usual, if the weather will permit, and breathe sparingly, and take every now and then a gentle emetic. In the second stage, confine the patient to a bed-room and sitting-room upon the same floor, communicating with each other. In these rooms Swedish tar should be kept boiling, night and day, over a small lamp; thus the vapor of it will pervade both rooms. When the symptoms run high, the remedy is almost miraculous.

Part xii., p.

Hooping Cough.—Dr. McGregor advises, in the first stage, mild antiphlogistics, daily emetics, and strict confinement to the house, except in summer months. In the latter stages, give the following: Tincture

catharides, tinct. of opium, comp. aa. ℥ss.; tinct. cinch. co. ℥vss. A teaspoonful to be taken three times a day in a little boiling water; the dose to be increased if no stranguary is produced.

Part xiv., p. 73.

Ether in Hooping Cough, Spasmodic Cough and Asthma.—[Dr. Willis, in referring to the use of ether as a remedial agent in the treatment of spasmodic diseases generally, of the respiratory organs, states his belief that it will scarcely be found less important than in surgical operations.]

Ether, given *by the mouth*, has long been familiarly employed in the treatment of asthma. I have for many years been aware of the fact, that it is vastly more efficacious administered directly in vapor *by the breath*. So effectually have I seen its immediate application, that I have even found it necessary to suffer the patient to have an occasional fit of coughing to its natural termination, with a view of clearing the chest from accumulated mucus.

Hooping cough often, perhaps most frequently, proves fatal, in the absence of all inflammatory or organic disease, through the simple violence and continuance of the spasmodic cough. The patient goes on coughing, till the lungs fail in their function; he becomes livid in the face, and black blood is circulated to the brain; convulsions then ensue, and animal sensibility fails or is lost. The spasm may now have ended, but the sufferer is no longer aware of the *necessity of breathing*; the respiratory muscles are paralyzed, a minute passes, and life is gone. If respiration be restored at this critical moment, life may be saved; and this I have myself done—using my own mouth to the child's, to free the air-passages from the frothy mucus that filled them, and blowing the chest up gently, circulation returned, automatic movements followed, and consciousness was restored.

Part xv., p. 103.

Treatment of.—Professor Trousseau recommends the following solution of nitrate of silver in cases of hooping cough: ℞ Aq. destil., ℥j.; sirup. simplicis, ℥ss.; argenti nitratis, gr. one-fifth: to be taken daily.

Part xvi., p. 133.

Use of Coffee in Hooping Cough.—Give strong coffee, well sweetened.

The dose for a child of two years old is a teaspoonful four times a day, or oftener; for a child of four years, a dessertspoonful; and for an older patient, a tablespoonful. Let the diet consist principally of fried and roast meat; the quantity of milk used being diminished, and farinaceous food, confectionery, and fruit, being entirely prohibited.

Part xx., p. 83.

Hooping Cough.—Give Fowler's arsenical solution. Previous to and during its use, bleeding, blisters and emetics, may be employed according to the indications. Children of a year old may take it safely. In catarrh or influenza, it may also be given, in the following form: ℞ Liq. pot. arsenitis, ℥j.; vini ant. tart., vini ipecac., liq. potas. aa. ℥iiss.; aqua destil., ℥xij. Fiat mistura cujus sumatur ℥j. ter die.

Part xxiv., p. 29.

Hooping Cough.—Apply a solution of nitrate of silver, 20 grains to the ℥j. of water, to the larynx by means of a probang and sponge. Out of 125 cases of this disease so treated, 78 were speedily cured, 30 were greatly relieved and shortened, and 8 resisted the treatment altogether.

Part xxvi., p. 67.

Tannin in Hooping Cough.—Dr. V. Brewning employs the following:

R Tannin, gr. $\frac{1}{2}$; acid. benzoic., ext. belladon., utrq., gr. $\frac{1}{4}$; pulv. r. gr. $\frac{1}{2}$; p. gumm. acac., gr. xij. M. fiat pulv. The powder may be given three or four times a day. For a very young child half the dose twice daily will be sufficient. *Part xvi., p.*

Chloroform in Hooping Cough.—In the case of a girl, sixteen years of age, afflicted with hooping cough, the inhalation of a little chloroform during the paroxysm, in two days removed the hooping sound. The best way to use it in cases of children, is to drop about thirty drops in the palm of the hand, and hold it near enough to allow a due mixture of atmospheric air with the vapor. The best time is before the irritation in the chest has increased to a cough. It should be repeated on each return of the irritation. *Part xviii., p.*

Topical Treatment of Hooping Cough.—That the solution of nitrate of silver removes the excited state of the extremities of the branches of the par vagum, is proved by the fact that, after all inflammation has passed by and the hoop only remains, the topical treatment is by far the most effectual. The most convenient apparatus for the application of the solution, is by the sponge and whalebone. The strength of the remedy should be regulated by the stage of the disease; the greater the degree of inflammation the weaker should be the solution, and its strength should be increased as the disease decreases. Perhaps, we may say at first five grains to the ounce; in other cases two scruples to the ounce may be used with advantage. The application should be renewed at least every second day. If the hoops are very violent, however, or the remedy has not been applied until the disease has reached its height, the applications should be more frequent. It may be noted that in cases where it is necessary to introduce the sponge into the larynx, the finger should be introduced into the patient's mouth, so as to touch the tip of the epiglottis, along the surface of which the instrument may be glided down with certainty to reach the rima glottidis. *Part xviii., p.*

Treatment of.—According to Dr. Todd, hooping cough is a disease which runs a certain course, can be communicated from one person to another, and is probably due to the influence of a poison which gets into the system, and produces its local manifestations on the vagus nerve. It is not an inflammatory affection of any part, being simply dependent on a morbid state of the blood, caused by the introduction into it of some poison from without; and whatever inflammations may occur in the course of it must be regarded in the light of complications of the disease.

As hooping cough seems to be the elimination of some poison in the blood, we must endeavor to find an antidote to it. As we know of no antidote, we are obliged to let the patient cough the disease away, guarding him against the bad consequences, and protecting him from the complications. The disease is not an inflammatory condition of any part; therefore, any antiphlogistic treatment does harm by weakening the patient and impoverishing the blood. The first thing is to guard against bronchitis and pneumonia, by affording a well-regulated temperature. Then we must uphold the strength by keeping the patient well nourished. The chest may be also sponged with water once or twice a day; of remedies, the sedative, anti-spasmodic class, is the best for allaying the irritability of the parts, as the preparations of opium.

henbane, conium, belladonna, and hydrocyanic acid. Depressing drugs should be avoided, as tartar emetic and ipecacuan. The careful inhalation of chloroform deserves a trial, but only in small quantities. Splashing the chest with cold water is also valuable, taking care not to wet the head, and that the temperature of the room be warm when it is done.

Part xxix., p. 82.

Hooping Cough.—Nitric acid arrests the paroxysms and removes the hoop. It is a tonic, and supplies the blood with nitrogen, which removes or neutralizes the excess of fibrin existing in that fluid at the time, and which is a great source of danger. Give dilute nitric acid. Twelve drachms of the dilute acid in a four-ounce bottle with sirup—a dessert-spoonful to be taken every few hours by a child under two years old. For an infant give about a teaspoonful.

Part xxx., p. 51.

Hooping Cough.—*Vide* Selections from Favorite Prescriptions, Art. "Medicines."

Use of Tannin.—The following mixture is very useful in the third stage of pertussis: R Tannin, gr. vj.; ext. belladon., gr. j.; ext. cicuta., gr. iv.; inf. sennæ, ℥ij.; aq. fenicul., sir. altheæ, aa., ℥j. One teaspoonful every two hours.

Part xxxii., p. 287.

Hooping Cough.—This is essentially a nervous disease, and our treatment must be directed to the removal of the spasm. The secretion which is present is chiefly due to the violence of the cough, and consequently should not be increased by expectorants. You must remove all sources of irritation, give nutritious food, remove to a pure air, and give morphia to relieve the spasm. The dose to begin with must be very small (say the sixty-fourth of a grain to an infant four months old), and rapidly increase the quantity until a slight drowsiness is perceptible, and then regard that as the measure of the dose; this effect must be maintained, and in the course of a few days the spasm will cease, the cough be relieved, and the child will soon be well.

Part xxxiii., p. 101.

Use of Cantharides.—It was thus given to an infant: Tincture of bark, half an ounce; tincture of cantharides, three drachms; compound tincture of opium, half an ounce. A teaspoonful to be taken three times a day in a tablespoonful of linseed tea. This remedy, or a modification of it, Dr. Hynes has been in the habit of employing in cases of pure uncomplicated pertussis, and invariably with the effect of cutting short the disease after a few days' persistence in the treatment; the strangury which it induces must be kept up in a mitigated form for some days. Dr. Hynes, at first, orders for his patient a gentle emetic of ipecacuan powder, then an active aperient, places the patient on a non-stimulating diet, and commences the use of the foregoing remedy.

Part xxxiv., p. 45.

Hooping Cough.—The nitric acid mixture of Dr. Gibb, which has proved so serviceable in hooping cough, is composed of acid. nit. dil., ℥ij; tinc. card. co., ℥ij; sirup. simpl., ℥iiss; aquæ, ℥j. M. For a child under two years, one teaspoonful of this may be given every two hours. Children from two to five, and so on, may take increased quantities. It is of some importance to bear in mind the necessity for a soda gargle immediately after taking the medicine.

Part xxxv., p. 38.

HYDATIDS.

Of the Lower Lip.—Vide Art. "Lip."

Hydatids of the Uterus—Case of.—Dr. Hyslop's patient was 30 years of age, and the mother of several healthy children. Dr. Hyslop.

For several months prior to this date, September, 1847, she was losing flesh, and much annoyed with a profuse leucorrhœal discharge. Tonics and astringent injections have failed to arrest—have continued regularly, but profusely, till four months ago, when suppression of the discharge took place, and in its stead, frequent discharges of clotted blood—serum have occurred at irregular intervals, and occasionally in profuse and exhausting quantities. She complains of frequent paroxysms of sickness, faintness, and feeling of exhaustion—straitness and soreness across the chest, together with palpitation of the heart, loss of sleep and borborygni—dragging pains in the back and loins, and tenderness of the lower extremity.

Above the pubis there can be readily felt, and accurately defined, a circumscribed swelling of the size of a well-developed uterus immediately before delivery; solid but not painful to the touch; of a regular and globular shape and rather mobile. This tumor has only recently attracted the notice of the patient, and she fancies it varies in size from time to time. On examination per vaginam the uterine orifice appeared quite closed, and with effort to introduce the finger was successful. The tumor in uterus was readily felt through the vaginal walls.

Patient assures me it is impossible she can be pregnant.

Failing, after the lapse of several weeks, to obtain any relief of her symptoms, and especially of the severe sanguineous discharge, from the use of mineral acid, the recumbent posture, gallic acid, iodine injections, irrigating the vagina, and even ergot of rye, I resolved to take advantage of one of the capricious intervals of a cessation of the hemorrhage, to dilate the os uteri, and make a manual examination of the uterine cavity, remove the cause of irritation, and endeavor to bring about a healthy state of the utero-vaginal mucous membrane.

With this design, I prepared a series of sponge-tents, and accomplished the complete dilatation of the os uteri, bringing into view, through the speculum, a bulky bloody-tinged body, hanging pendulous from some part of the superior surface of the uterine cavity.

Having previously, at intervals, administered two capsules of a very strong infusion of ergot, I introduced my hand into the uterus on the 1st of October, and, guided by the morbid mass itself, sought its most firm attachment, and cautiously detached it from the mucous surface of the uterus. This I repeated until I conceived I had removed the morbid mass from the uterus, which thereafter slowly, though sparingly, contracted under my hand, and on the following day could scarcely be felt.

A considerable hemorrhage took place both during and subsequent to the operation, which, from the debilitated and exhausted state of the patient, it was exceedingly desirable to obviate. I directed emollient and warm flannel alternately to be applied locally. Repeated doses of infus. seed. cornut. during the day and subsequent night, and some doses of gallic acid administered thrice a day, were continued for upwards of a fortnight, when the colored discharge had nearly ceased. Under this treatment, and a generous diet, she recovered slowly.

The masses removed in this case were stringy bodies, like the fibrinous portions of a clot of blood, covered internally and externally with hosts of large and small hydatids. *Part xxi., p. 299.*

Hydatids.—For the expulsion of hydatid growths from the uterus, apply galvanism. *Part xxix., p. 268.*

Treatment of Hydatid Tumors in the Abdomen—Operative Measures.—It has been attempted to show that operative interference should be reserved for cases in which urgent symptoms impend. A hydatid tumor in the abdomen may cause urgent symptoms, *first*, by acquiring a very large size, and distending the cavity; *secondly*, by interfering with the function of the viscera adjoining it, as the liver, kidney, etc.; *thirdly*, by occluding, by pressure on the intestines, uterus, etc., the passage of the excretions; *fourthly*, by exciting surrounding inflammation, and threatening to rupture. In any one of these conditions, surgical assistance may come to be demanded, but the measure required will differ considerably in each. Thus, when the cyst is so large as to have distended the abdomen, it will generally have acquired adhesions, so that its puncture will be comparatively without risk. The same will be probable if it have excited surrounding inflammation, under which condition also it may become necessary to make a permanent opening for the escape of pus, when otherwise a trocar puncture would have sufficed. The cases, however, in which urgency is caused by interference with the viscera, are by no means secure from the risk that the tumor may be quite unconnected with the parietes; and in the treatment of these the greatest judgment will be called for. If the tumor be in the lower half of the belly, examination *per rectum* and *per vaginam*, if the patient be a woman, should never be omitted, as it might chance that a puncture would be best made into one or other of these canals. A case has been already mentioned, in which a rectal examination would, probably, have saved the life of the patient. Supposing, however, that it seems necessary to make an external opening, and that there is reason to believe that the cyst has no adhesions to the parietes, the surgeon has then the choice of two methods—the use of a very fine trocar, or the application of an escharotic. The latter means was employed successfully by Mr. Le Gros Clarke, in a case under his care, and the former may be confidently stated to be very safe. The selection will, therefore, depend chiefly upon whether it be wished to make a permanent opening or not. And this brings us to the consideration of the important question already mooted, as to whether it is absolutely necessary to obtain the evacuation of the contents of the cyst, or whether to kill it, and then trust to their absorption, will suffice. Hitherto the plan of simply destroying the life of the cyst has, we believe, not been tried. In Mr. Le Gros Clarke's case, however, it probably occurred, and the cure resulted without the removal of the smaller cysts, as had been intended. This accidental result is very instructive. Might it not be worth while, in future cases, to take means to secure the death of the parasite, such, for instance, as the injection into it of a solution of salt, or of iodide of potassium? The evacuation plan necessarily involves long-continued and profuse suppuration, which, supposing the cyst large, may become very dangerous. At any rate, whichever plan be selected, there can be no doubt as to the propriety of conducting the first steps of the treatment on the plan exemplified in the case which did so well under the care of Mr. Cock, namely,

of reducing the size of the tumor by repeated punctures with a very small trocar. Hydatid cysts re-secrete very slowly, and by such means the diminution in size may be effected, almost without risk. The trocar should be an exploring one, and of very small bore.

We must not leave this part of the subject without venturing another remark, to the effect that a patient, suffering from urgent symptoms, however produced, in consequence of a hydatid tumor in the scrotum, should never be allowed to die without an attempt to relieve by operation being made. The recorded cases have been quite sufficiently satisfactory to indicate the propriety of making such attempt, even under very unfavorable circumstances.

Part III., p. 24

HYDROCELE.

Treatment of Hydrocele—Iodine Injection.—For the last few years Mr. Bransby Cooper has used this exclusively—two drachms of tincture of iodine and six drachms of water; two drachms of which mixture are injected and left.

Always place your Patient in a Chair.—Always place your patient on a sofa, or lean him back in a chair, because any one is liable to faint, however bold he may appear.

Never let a Patient walk Home after Injection.—Even after cupping, I have several times known inflammation thus set up sufficient to bring about a radical cure; and I know of several cases where the patient has walked after injection, where great sloughing, and in one case death, ensued. I have notes of a case here where acute inflammation was thus set up, which terminated in gangrene and death in thirty-six hours, though the sac was not injected.

Sir Astley Cooper also mentions cases where dangerous symptoms came on after the patient had been allowed to walk; and one above others, of a gentleman who went down to Birmingham in the mail soon after operation, and sloughing of the whole of the scrotum followed. He also quotes cases, where he thought suppuration was thus produced.

Part II., p. 11

Radical Cure of Hydrocele.—M. Velpeau expresses his surprise that the surgeons of London, Berlin, and America should still perform dangerous, long, and bloody operations, instead of the one he is in the habit of using. But he himself recommends incision of the sac, in cases where the contained fluid is thick, or where the coats of the tunica vaginalis are hard, thick, and solid that injection of the sac will fail to cure the disease; and in cases where the sac has degenerated into a stony or osteo-cartilagenous shell, or into lardaceous matter, he recommends excision.

In the radical cure of hydrocele, Velpeau prefers the tincture of iodine as an injection, to all others. It has the following advantages: "a small quantity only is required, half an ounce to an ounce; it produces no consequences even if allowed to remain in the sac; it does not cause any serious injury if injected into the cellular tissues; and lastly, it is almost uniformly successful." The strength of the liquid is two or three drops of the tincture to an ounce of water, and he has even used the pure tincture without injury.

Part IV., p. 19.

Improved Treatment of Hydrocele.—It need scarcely be recalled to mind that in the operation for hydrocele, after the serum has been discharged through the canula of the trocar, it is usual to inject an irritating fluid in order to induce an adhesive inflammation in the parietes of the tunica vaginalis. The inflammation somewhat subsides after about the fifth day, but a month commonly elapses before the whole quantity of the injected fluid is absorbed and a cure effected. On this somewhat tedious course of practice M. Lisfranc, has made the following improvement: On the sixth day, after the use of a vinous injection, he makes a second puncture, for the purpose of emptying the tunica vaginalis of all the accumulated liquid, thus sparing nature the task of its absorption; and by these means he alleges that a cure can be completed in less than half the time occupied by the usual method. *Part vii., p. 116.*

Radical Cure of Hydrocele.—The injection of different liquids, such as the solution of different salts, wine, brandy, and iodine, may certainly cause mischief occasionally, by finding their way into the cellular tissue: but, nevertheless, this mode of treatment is found to be generally very successful and simple. Dr. Porter of Dublin, however, prefers the following method: Having first tapped the sac to ascertain the nature of the disease, and allowed the fluid to reaccumulate, he makes an incision of an inch or an inch and a half in length, down to the tunica vaginalis, ascertaining if any considerable blood-vessel is wounded and then passes a bistoury into the cavity at one extremity of the incision, and brings the point out at the other extremity, dividing the intervening portion by rapidly withdrawing the knife. A tent of rolled lint, moistened with oil, and secured with a ligature, is then introduced. Next day the patient is bled from the arm; particularly if the scrotum show signs of inflammation. The tent is left to become loose, and drop out of itself, which usually takes place on the third or fourth day, and need not be replaced. Mr. Adams relates a case in which he cured the affection simply by withdrawing the liquid, and then pushing through the cannula a camel's hair brush dipped in a strong solution of iodine, so as to smear it over the internal surface of the sac, and thereby promote the usual course of inflammatory action. *Part x., p. 140.*

Rare Form of Hydrocele.—[J. D., aged 24, admitted into the hospital for enlargement of both testicles, hydrocele, and ulcerated scrotum, attributed by the surgeon who sent him in from the country, to improper excitement of the generative organs. The difference between the sides of the scrotum was slight; the left side was solid from the testicle, which was swelled to the size of a small fist, whilst about half the right was fluid.]

On examining the hydrocele more particularly, says Prof. Syme, I felt that it could be diminished by pressure, and therefore made the patient take the horizontal posture, when it became very evident, that the swelling extended into the abdomen, so as to form a well-defined oval tumor, obvious to sight and touch, ascending nearly to the umbilicus. A slight degree of pressure emptied the scrotal part of the bag, rendering that within the abdomen more tense; and when the latter was compressed, or the patient stood erect, though the abdominal tumor did not disappear, it became less distinct, while the external one became more fully distended. When the two parts of the swelling were compressed alternately, a distinct fluctuation was perceived between them.

[The natural state of the testicles was soon pretty much restored by potassæ hydriod. and the use of a bougie, but the hydrocele returned *statu quo*. This was then punctured, and 28 ounces of fluid drawn off; so rapidly did it accumulate again, that in ten days the operation had to be repeated. Iodine injection was then thrown up, and the fluid again formed again.]

This case derives interest not only from the extreme rarity of disease in which the disease presented itself, but also from the light which it throws upon another morbid condition of more frequent occurrence. It is plain that the hydrocele occupied the cord, and not the tunica vaginalis; since, in the latter situation, the fluid would have surrounded the testis, lying, as it did, entirely above the testicle; and if it had had access to the cavity of the peritoneum, would not have been circumscribed within the limits of a distinct tumor.

The abdominal part of the swelling must have been seated in the cellular texture enveloping the spermatic vessels, and externally, to the peritoneum. Now, hydrocele of the cord is frequently met with during early and early childhood, when it is very apt to be mistaken for rupture in consequence of the testicle being felt lying quite free at the bottom of the tumor; and the risk of this error is generally increased, when occasionally happens, the tumor diminishes or disappears upon being subjected to pressure, or when the patient is in the horizontal posture. But especially to guard against the erroneous diagnosis which thus results, that the present case seems to deserve attention; as it shows that in hydrocele of the cord, accommodation for the fluid may be afforded not only in the abdomen, and renders it probable that what was thus accounted for may take place on a large scale, may be of less unfrequent occurrence; and a smaller degree requisite for explaining the temporary disappearance of the swelling caused by hydrocele of the cord, through the influence of pressure or the horizontal posture.

Part xii., p. 11.

Treatment of Hydrocele by Alcoholic Fomentations.—Dr. Pleindoux, of Nismes, relates the following case: A wine-merchant, of Nismes, had been affected for a length of time with a considerable hydrocele of the left side of the scrotum, and for private reasons requested palliative treatment. A puncture was made on the 11th October, 1844, and more than a pint (demi-litre) of water drawn off. Nine months after, a second puncture, simply to evacuate the fluid, was made. It then occurred to the patient to envelop the scrotum with a large compress, doubled six times, and steeped in alcohol of 30 degrees. This application, kept in place by a suspensory bandage, was renewed every evening. The effect was to produce great contraction of the scrotum. A slight sensation of cold only was experienced, which remained some minutes. The fomentations were continued forty days, and the patient was completely freed from his hydrocele, which has not returned during eighteen months. Having observed this fact, M. Pleindoux repeated the application on the first occasion which presented itself, and has now done so four times successfully.

Part xiv., p. 20.

Cure of Hydrocele.—Dr. Harvey, of Bristol, has for thirty years successfully employed the following treatment in hydrocele, obtaining a radical cure without injection. His mode of treatment is as follows: First, discharge the fluid with a trocar, or pocket lancet, and then apply:

warm vinegar poultice all over the scrotum, in order to bring on inflammation, which generally takes place in a few hours, and becomes painful. When sufficient inflammation has been excited, remove the vinegar poultice, and apply a bread and milk poultice; in a short time the pain and inflammation generally subside, and the cure is completed. Give a few smart doses of purgative medicine.

Part xiv., p. 235.

Treatment of Hydrocele.—In young children, the cure of simple hydrocele, if not spontaneously produced, may generally be effected by local applications; and I have frequently produced absorption of the fluid by the use of the following lotion:

R Amm. hydrochlor. 3j.; liq. am. acet. sq. vini rect. aa. ʒij.; aque destil. ʒiv. M. Ft. lotio sæpe applicand.

Should this treatment not succeed, acupuncture is almost infallible in children. In later periods of life, hydrocele sometimes undergoes a spontaneous cure, from a blow, or any cause which induces inflammation, or from a rupture of the tunic attended by diffusion of the fluid.

[Speaking of the various operations which have been recommended for the radical cure of hydrocele in the adult, Mr. Cooper observes:]

Incision was the operation employed by John Hunter; it was performed in the following manner: He made an incision into the tunica vaginalis, allowing the fluid to escape, and then, sprinkling flour on the surface of the tunic to excite inflammation, the membranous sac filled up by granulation. This operation, however, so frequently led to sloughing, that Mr. Pott repudiated it, and substituted that of injection, which is now almost always employed. In those cases, however, in which there is a great difficulty in forming a diagnosis, incision is a most safe mode of proceeding, provided no further means be employed to produce inflammation of the tunica vaginalis. In June, 1839, I admitted a patient, aged sixty-four, into Stephens' Ward, Guy's Hospital, who was the subject of a large serotal tumor, which had formed so rapidly, that I doubted whether it was hydrocele or hematocele; this doubt was strengthened by the perfect opacity of the tumor, and I proceeded therefore to open the tunic by way of exploration: a pint of brownish serum was evacuated, and I found the tunica vaginalis extremely thickened, in some parts cartilaginous, and at its upper portion ossified; the patient was, however, perfectly cured by this simple operation. My colleague, Mr. Cock, also treated a similar case by incision, but in that instance the whole cartilaginous tunic was thrown off by a sloughing process; but the patient also recovered. I have myself had several cases in which I have adopted simple incision as the mode of treatment.

[Mr. Cooper does not, however, approve of this operation, except in such cases as offer a difficulty in ascertaining the precise nature of the disease. The operations by excision, caustic, and seton, he decidedly condemns.

Mr. Cooper now always uses the iodine injection in the radical cure of hydrocele, as he finds that its use is invariably successful, and is free from all the ill effects which frequently followed the employment of the solution of zinc, or wine and water.]

In performing the operation, take care to push the canula quite into the cavity of the tunica vaginalis, by a quick, semi-rotatory, jerking motion, having placed the fore-finger on the canula so as to limit the extent of its

introduction. If from want of this precaution, the fluid injected has become extravasated into the cellular tissue of the scrotum, make several incisions into it, which will generally prevent bad consequences. In cases where there is difficulty in forming the diagnosis of hydrocele, the operation of incision may be resorted to.

Congenital hydrocele differs from the common species in having a communication with the peritoneal cavity, into which the fluid may be returned by pressure. In this form of hydrocele, of course, injection is not to be thought of; a truss should be worn with the view of obliterating the communication between the cavities.

Acupuncture may be safely adopted in cases of congenital hydrocele that are not cured by the pressure of a truss.

The mode of proceeding is to insinuate the needle into the tunica vaginalis by several punctures, which permit of the exudation of the fluid into the cellular membrane, where it becomes absorbed.

Encysted hydrocele is so termed when the fluid, instead of being contained within the tunica vaginalis, is secreted in an adventitious sac.

Puncture with a needle, and squeeze out the fluid into the surrounding cellular membrane. Then give purgative medicines, and let the patient wear a suspensory bandage, and evaporating lotion.

Hydrocele of the cord is much more difficult to diagnose than hydrocele of the tunica vaginalis, having a great resemblance to bubonocoele. As to its pathology, Mr. Cooper observes:

Mr. Curling seems to have adopted Mr. Pott's opinion, that this disease is an oedematous condition of the cellular membrane of the cord—an anasarctous effusion; but, from two or three cases I have seen, I am inclined to believe that the collection of fluid is within the serous membrane itself, although there can be no doubt that an anasarctous condition of the cord does occur, as in other parts of the body, and which may be cured by the same local and constitutional means employed for anasarca generally.

I should consider the best treatment for true hydrocele of the cord, whether seated in the inguinal canal, or below the external ring, to open the tunic, evaporate the fluid, and apply a truss. I should hesitate before employing an injection, from the dread of the ill effects which might result from the close proximity of the peritoneum; but this mode of practice is sometimes recommended.

Encysted hydrocele of the spermatic cord I should consider as similar in every respect to encysted hydrocele of the testicle, excepting in situation that they are always in both cases exterior to the cavity of the tunica vaginalis, and contain a limpid, uncoagulated fluid.

The means to be adopted for the obliteration of these cysts, if they do not spontaneously disappear, are either acupuncture or seton, the former of which should always be first attempted before having recourse to the more dangerous mode of the introduction of a silk into the cyst.

Hematocoele is a collection of blood instead of serum in the tunica vaginalis; and the diagnostic marks between hematocoele and hydrocele are that in hematocoele, the effusion of blood results at once from the lesion of a blood-vessel, and therefore rapidly forms upon the application of the exciting cause; while the fluid of a hydrocele results from an inflammatory action, and only gradually accumulates. In hematocoele the tumor is always opaque, and much heavier than in hydrocele; consequently greater

inconvenience is experienced. If called to a recent case of hematocele, you will generally find the scrotum more or less ecchymosed and distended by a fluctuating tumor, and probably the history of the case will prove that a blow, or some other external force, has been the cause of these appearances, and is sufficient to constitute the diagnosis of the malady.

Hematocele not unfrequently results from the operation of tapping a hydrocele, in consequence of the trocar wounding some abnormally distended vessel, either of the skin or tunica vaginalis. In such a case, a few hours after the serum has been drawn off, the swelling is as large as ever, from the accumulation of blood. The largest hematocele I ever saw was produced in this manner.

[The treatment of hematocele is to lay open the cavity, and turn out the coagulum.] *Part xix., p. 175.*

Treatment of Hydrocele by Seton.—When the iodine injection fails, employ a seton, consisting of one or two threads of dentist's silk. Introduce it by means of a navus needle, allowing the fluid to drain away through the punctures thus made: or else tap the hydrocele, pass a needle six inches long, armed with the seton, up the canula, draw it through the upper part of the scrotum, remove the canula and knot the thread. When a sufficient amount of inflammation appears to be set up, remove the seton, and treat the case by rest and antiphlogistic regimen.

Part xxi., p. 240.

Radical Cure of Hydrocele.—After emptying the sac, introduce through the canula some finely-levigated powder of nitric oxide of mercury (quantity not stated). This plan is quite safe and certain, and is much more convenient and speedy than that of injection. *Part xxi., p. 242.*

Treatment of Hydrocele.—Many instances are recorded of patients having experienced a spontaneous cure of hydrocele, even without any apparent cause for the absorption of the fluid—in young children this is not by any means uncommon.

In children, says B. B. Cooper, I never recommend tapping, but try first the effect of general treatment, applying merely a lotion to the part; the bowels should be opened freely, and the following lotion applied constantly to the scrotum:

R Ammon. muriat., ʒj.; sp. vini rectif., liq. ammon. acet., aa. ʒij.; aqua, qiv. M. Ft. lotio.

Should such treatment not prove successful, I try acupuncture, making two or three small punctures into the tunica vaginalis; and squeezing the fluid into the cellular tissue, so as to produce a kind of œdematous condition of the scrotum. I have seldom known this plan of treatment fail in children, but in adults it is only palliative. In the adult, first simply tap and draw off the fluid, and do not employ an injection. If the disease returns, then inject two drachms of one part of tincture of iodine to ʒj. of water. This is generally successful.

Part xiv., p. 247.

Hydrocele.—The color of the fluid may be easily diagnosed in common daylight by looking through a tube, one end of which is firmly placed against the tumor. Mr. Lloyd uses the ointment of the nitric-oxide of mercury, passing a tube smeared with it through the canula, and moving it about in the inside of the sac. Mr. Wormald prefers the

palliative treatment, making twelve or twenty punctures with a full-sized needle, and repeating the operation when the sac refills.

Part xxviii., p. 212.

Hydrocele—Radical Cure of.—After the withdrawal of the fluid, introduce a few grains of red precipitate into the sac through the canula, by means of a director. This is quite safe, is uniformly successful, and will answer when iodide injection fails.

Part xxxiii., p. 213.

Hydrocele.—Pass about a grain of the red oxide of mercury into the sac by means of a probe, through the canula which has drawn off the fluid. It will produce inflammation, and effect a cure in every instance.

Part xxxv., p. 135.

Hydrocele.—Puncture the swelling with a common darning-needle, which rotate about for a few minutes, and the fluid will thus be allowed to escape into the cellular tissue of the scrotum, whence it will be speedily absorbed. This is perfectly simple and almost painless, and in a tolerably large number of cases, a permanent cure will follow.

Hydrocele-Photoscope.—When the translucency of the swelling is made a means of diagnosis, much trouble may be avoided by using a tube of tin about 7 inches long, $1\frac{1}{2}$ in diameter at its larger end, and tapering to $\frac{1}{2}$ at the other, where it is furnished with a wooden eye-piece. It must be blackened inside. In sunlight a candle can be thus dispensed with.

Part xxxvi., p. 163.

Hydrocele.—Mr. Pollard, at St. George's Hospital, adopts with success the treatment of hydrocele recommended by Dr. Simpson, viz., the introduction of metallic wires through the sac, leaving them there for a few days; they completely drain it of fluid, and excite sufficient inflammation of an adhesive character to insure the obliteration of the sac.

Part xl., p. 148.

HYDROCEPHALUS.

Peculiar Mode of giving Mercury in Chronic Hydrocephalus.—Dr. Watson, in his lecture, relates the following:

An apothecary of considerable experience once took the pains to write out and send me the particulars of two cases in which he had seen a peculiar mode of administering mercury successfully.

He had a lad, fourteen years old, under his care, with chronic hydrocephalus. He had been ill two or three years. He was nearly blind, had very little use of his lower extremities, and could not walk across the room without support. He suffered violent pains in his head, and was unable to bear the least pressure on his scalp. His bowels were constipated, and his pulse "oppressed." Cupping and blistering, and the blue pill, and drastic purgatives, and ordinary diuretics, tried in combination and succession, gave him temporary relief; but no permanent benefit was obtained. Dr. Gower then suggested a plan which he had himself found successful in such cases, and which had first been used by Dr. Carmichael Smyth, who had recorded ten cases of recovery under its adoption. Dr. Gower's plan was to rub down ten grains of crude mercury with about a scruple of manna, and five grains of fresh squills; this was to be one dose; and it was to be repeated every eight hours.

My informant rubbed the quicksilver down with conserve of roses, and then added the fresh squills, making the whole into the consistence proper for pills, with liquorice-powder. The patient took this dose three times a day, for nearly three weeks, without any ptyalism being produced. Its effects were great prostration of strength, and loss of flesh, with gradual relief of all the boy's sufferings. It operated profusely by the kidneys. The medicine was continued twice a day, and at length once, for another fortnight; when all the symptoms of the disease had disappeared. The boy was greatly emaciated; he was then ordered an ounce and a half of Griffiths' mixture thrice daily; and soon regained his health and strength, and got quite well, and he remained well eight years afterward.

Part iii., p. 62.

The Hydrocephaloid Disease.—Dr. Marshall Hall observes as follows:

The exhaustion on which it principally depends, has its origin, in early infancy, chiefly in diarrhœa, or catharsis; in the later periods of infancy, in the loss of blood, with or without the relaxed or evacuated condition of the bowels. It has very frequently succeeded to weaning, or to other changes in the diet, or to constipation.

The exhaustion from loss of blood generally follows the inappropriate or undue application of leeches, or the use of the lancet. Dr. Hall, indeed, gives a useful caution. Of the whole number, he says, of fatal cases of disease in infancy, a great proportion occur from this inappropriate or undue application of exhausting remedies. This observation may have a salutary effect in checking the ardor of many young practitioners, who are apt to think that if they have only bled, and purged, and given calomel enough, they have done their duty; when, in fact, in subduing a former, they have excited a new disease, which they have not understood, and which has led to the fatal result.

Dr. Hall divides the affection into two stages—the first that of irritability, the second that of torpor.

In the first stage, he goes on to observe, the infant becomes irritable, restless, feverish; the face flushed, the surface hot, and the pulse frequent; there is an undue sensitiveness of the nerves of feeling, and the little patient starts on being touched, or from any sudden noise; there are sighing and moaning during sleep, and screaming; the bowels are flatulent and loose, and the evacuations are mucous and disordered.

If, through an erroneous notion as to the nature of this affection, nourishment and cordials be not given, or if the diarrhœa continue, either spontaneously, or from the administration of medicine, the exhaustion which ensues is apt to lead to a very different train of symptoms. The countenance becomes pale, and the cheeks cool or cold; the eyelids are half closed, the eyes are unfixed, and unattracted by any object placed before them; the pupils unmoved on the approach of light; the breathing, from being quick, becomes irregular and affected by sighs; the voice becomes husky, and there is sometimes a husky, teasing cough; and eventually, if the strength of the little patient continue to decline, there is a crepitus or rattling in the breathing; the evacuations are usually green; the feet are apt to be cold.

A similar train of symptoms occurs in other cases, in which the strength of the little patient has been subdued and the vascular system exhausted by the abstraction of blood. Stimuli, if efficacious, reduce the

frequency of the pulse, and restore the wonted warmth, color, expression and smiles to the countenance.

Dr. Hall particularly insists on a close observation on the condition of the cheeks, in regard to color and warmth. That condition, he says, may be considered as the pulse of very young infants indicating the degree of remaining power, or of exhaustion. In the present case especially, there is no symptom so important, so distinctive. It is the condition of the cheeks, in conjunction with a due consideration of the history, that the diagnosis of this morbid state, and the indication of appropriate remedies, are chiefly to be deduced. The general countenance and especially the hands and feet, also afford important sources of information as to the condition of the nervous or vital powers. Next to the degree of frequency of the pulse, and the character of the breathing are points of the greatest importance; during the stage of irritability, breathing is quick; during that of torpor, it is slower, irregular, and, finally, crepitous; the pulse changes in its beat, from being tall and coming smaller, but retaining, perhaps, its former frequency.

We should be especially upon our guard, not to mistake the stage of coma, into which the state of irritability is apt to subside, for the state of sleep, and for an indication of returning health. The pallor and coldness of the cheeks, the half-closed eyelid, and the irregular breathing, will sufficiently distinguish the two cases.

The following is Dr. Hall's *methodus medendi*. The remedies, in use for the morbid affection are such as will check the diarrhoea, and thereby regulate the bowels, and restore and sustain the strength of the patient. With the first object, it may be necessary to give the most opii, and chalk, and afterward, the *pilula hydrargyri, rhubarb.* and *china*; with the second, *sal volatile*, but especially brandy; and for nourishment, are to be given according to circumstances. But, as in many cases of infantile disorders, the milk of a young and healthy nurse is the remedy of most importance; in the absence of which, *ass's milk* may be tried, but certainly not with the same confident hope of benefit.

Five or ten drops of the *sal volatile* may be given every three or four hours; and twice or thrice in the interval, five or ten drops of brandy may be given in arrow-root done in water. As the diarrhoea and appearance of exhaustion subside, these remedies are to be subtracted, the bowels to be watched and regulated, and the strength is to be continued and sustained by the nurse's or ass's milk. The brandy has sometimes appeared to induce pain; *sal volatile* is then to be substituted for it; a dose of *china* has also appeared to do good.

For the state of irritability, the warm bath is a remedy of great efficacy. For the coma, a small blister, or sinapism, should be applied to the nape of the neck. A state of exhaustion of the general system, as I have observed elsewhere, by no means precludes the possibility of congestion of the brain. It rather implies it. In extreme cases, are not only the symptoms of cerebral congestion during life, but effusion of serum into the ventricles of the brain is found on examination after death.

In every case the extremities are to be kept warm by flannel, and circulation should be promoted in them by assiduous frictions. It is of utmost importance carefully to avoid putting the little patient into an erect posture. A free current of air is also a restorative of the general efficacy.

Part IV.

Large Doses of Iodide of Potassium in the Last Stage of Acute Hydrocephalus.—Dr. Roesor gives us a case where he employed large doses of the iodide of potassium. The child lay quite insensible, pupils fixed and dilated, complete paralysis of one side, face flushed, body bathed in perspiration, and all the other symptoms denoting the last stage of the disease. One drachm of the iodide of potassium was dissolved in half an ounce of water, thirty drops of this solution were given every hour in a little water; one drachm of the iodide was at last given in twenty-four hours, and then the good effects appeared: in short, the child rapidly recovered without any other bad effects than a crop of boils. *Part iv., p. 54.*

The Employment of Cold Affusion in Acute Hydrocephalus.—Dr. Munchmeyer observes that the medical world is greatly divided in opinion as to the value of this remedy. Cold affusion must be looked upon as a directly antiphlogistic remedy, nor is its employment indicated during the early inflammatory stages of hydrocephalus, but rather when effusion, the consequence of inflammatory action, has taken place, and a tendency to paralysis exists. After the subsidence of the violent symptoms of the disease, and when the patient has sunk into a comatose state, with a pale countenance, occasionally suffused with a flush, dilated pupils, strabismus, and slow pulse, this remedy will frequently prove of excellent service.

In order, however, for benefit to be derived from it, it must be employed in an efficient manner. Dr. Munchmeyer directs that the patient should be taken out of bed, stripped of his clothes, and wrapped up in some simple covering (if waterproof the better), which leaves only his head exposed. He should then be placed in a sitting posture in a bath or tub, and the person who administers the affusion should mount on a chair and pour cold water upon his head, in a moderate stream from the height of five or six feet. This may be continued for a minute or two, and repeated twice or thrice. The patient should then be wrapped up in a warm sheet and placed in bed, where he should remain till it is thought proper again to have recourse to the remedy. At first, it will probably be requisite to repeat the affusion, in the course of an hour and a half or two hours; but as the patient improves, the interval may be longer, so that at last it will not be necessary to employ it above two or three times daily.

The immediate effect of cold affusion is, that the patients awake from their comatose condition and begin to cry violently, which they continue to do so long as the water is poured upon them. They afterward appear exhausted and pale, the skin is cool, the pulse small and very frequent. When placed in bed they usually fall into a doze, the pulse becomes more regular, and the warmth of the skin returns. By degrees, as with the repetition of the remedy the patients improve, they begin to have sound sleep, from which they awake in the possession of all their senses, recognize those by whom they are surrounded, and cease to squint. At the same time, too, a sweat, frequently of a critical nature, breaks out upon the whole body, and during its continuance the employment of cold affusion is very hazardous. The patient's sleep becomes more refreshing, and the comatose condition recurs at longer intervals; he begins to notice what goes on around him, the head regains its natural temperature, and the febrile symptoms disappear. The employment of affusion must, however still be continued for some days, since relapses very frequently occur.

Part iv., p. 65.

—[In Dr. Hannay's Dispensary cases is the following one of chronic hydrocephalus, which is said to be congenital:]

The infant was in its eighth month, and the head had acquired much beyond natural. It presented an unnatural expression, was stupid and inactive; squinting, vomiting, and costive bowels. It had several times attacked with convulsions, after which it lay motionless several hours. The fontanels were large and full. I directed (nit. pot. and pulv. ipecac.), as I have a notion that to increase the discharge is on many accounts very advantageous in this disease.

Decided benefit in this case was derived from a liniment of *ipecaeanha* root.

The formula I adopt is as follows: *R Ipecac. pulv.*; *olei olei Kassa* 3ij.; *adipis suill.* fss.; *M. opt. fiat linimentum fricando admodum.*

The part we wish to irritate is to be rubbed freely with this liniment fifteen or twenty minutes three or four times daily, and enveloped in flannel. This produces, in about thirty-six hours, or sometimes sooner, very numerous small papule and vesicles, seated on a deep-red base of irregularity.

The eruption endures very vividly for a few (three) days, during which pustules become covered with a scale-like scale, and fall off, leaving scars. They never ulcerate, as do the pustules from the tartrate of antimony.

In feeble, young, and very irritable persons, it will, I feel assured, be a very suitable counter-irritant. I specially beg attention to this in the head diseases of a chronic kind in infants and young children. Many of these cases follow the suppression of eruptions and scabs of the scalp. Now, the *ipecaeanha* liniment produces a moderate state of the scalp, as nearly resembling the affections in question as can be imagined, and maintaining a counter-irritation on the surface which has proved, I think, to be a very valuable agent of this nature. *Part viii. p. 3.*

Compression in Chronic Hydrocephalus.—M. Hirsch has published examples of the efficacy of compression in cases of chronic hydrocephalus. A child, eleven months old, labored under this affliction; the head was so large that the fontanelles open, and all the sutures widely separated. The lower extremities were paralyzed. On the 11th May, a mixture, containing decoction of bark, digitalis, and sweet spirits of nitre, was administered, and external frictions were made on the head. The paralysis gradually disappeared under the influence of this treatment. On the 28th the head was covered with strips of sticking-plaster, which compressed it on all sides, the plaster was renewed on the 28th of June and 4th of September, and in February it was found that the fontanelles and sutures were completely closed. The child had begun to walk and speak. *Part viii. p. 3.*

Strabismus in Hydrocephalus.—Dr. H. Kennedy says: When strabismus in hydrocephalus of adult life exists only to a slight degree, it is, I think, relieved better at a distance from, than close to the patient. *Part viii. p. 3.*

Chronic Hydrocephalus—Tapping the Membranes of the Brain.—[Sir John Fife publishes a case of chronic hydrocephalus in a child 17 months old, in which he tapped the membranes of the brain. The child's countenance was pale and clear, but otherwise healthy.]

The head is immensely large, twenty-six inches in circumference from ear to ear over the occiput, thirteen from ear to ear over the vertex, fifteen from ear to ear over the forehead; the skull appears to be inflated pretty equally; the eyes slightly project; the upper part of the face and the orbits is broadened; at the base of the nose it is completely blue from the

collections of veins which are placed there, and issue out over the forehead; the other parts of the skull are also traversed by numerous tortuous and enlarged veins. The child seems as intelligent as others at the same age.

Operation.—Sir John Fife placed the child on the knee of a nurse, its head in a line with the spine, which was half recumbent; he then with a small trocar penetrated the membrane in the coronal suture on the left side, half-way between the longitudinal suture and the temporal bone. After passing the trocar somewhat less than two inches, the stilette was withdrawn, followed by fourteen ounces of fluid, the first twelve of which were perfectly limpid, the last two bloody. Compression by the hands of assistants was carefully made on the head, and maintained afterward by adhesive straps and a long bandage, a little dry lint being applied to the wound. In an hour after the operation the child looked rather pale, but otherwise appeared the same, and was sucking vigorously its mother's breast.

[A week after the operation, the child seemed rather stupid, but with this exception the case went on well, merely requiring castor oil to keep the bowels in a free state. On the ninth day a bandage was applied round the head.]

Part xi., p. 177.

Hydrocephalus—Acute.—The only available treatment is the prophylactic, which should be the same as for phthisis. Let the child be suckled by a healthy wet nurse, and not be weaned till it has cut four molar teeth; and let milk subsequently form a large part of the diet. Let it reside in the country; wear warm clothing, and have flannel next the skin; avoid over-exercise of body and mind, and be shielded as much as possible from exposure to the contagion of the exanthemata. When the disease has appeared, employ moderate depletion, remembering that the disease is a *scrofulous* inflammation; give purgatives so as to maintain a free action of the bowels for several days; and obtain mercurial action by giving calomel with the purgatives.

Part xvi., p. 68.

Chronic.—Cut the hair close, and rub in two drachms of mild mercurial ointment, daily, into the scalp, and keep the head covered with a flannel cap. Give a quarter or a half a grain of calomel twice a day, unless diarrhœa comes on. After thirty or forty days, if the patient is improving, gradually diminish the medicines; but if not, add a mild diuretic and insert a couple of issues in the occiput, or apply blisters to the nape. Leeching may be occasionally required. In order to prevent the bones of the head yielding to any accumulation of fluid in cases of external hydrocephalus, apply compression by bandaging the head with strips of diachylon plaster about one third of an inch broad: or use Dr. Arnott's *air press*. *Tapping* the head is occasionally proper; use a fine trocar and canula—make the puncture in the coronal suture an inch or an inch and a half from the anterior fontanelle; withdraw only a few ounces of fluid at a time, and keep up pressure both during the escape of the fluid and afterward. *Part xvi., p. 73.*

Treatment of.—Dr. Willshire says that it is only by a decisive effort applied at the commencement, that the progress of this fatal disease can be arrested. The treatment has varied according to the opinions held respecting the nature of the disease: purely antiphlogistic treatment having been adopted by those who believed meningeal and cerebral congestion to be the cause of death; while those who regarded ventricular effusion as the most important pathological character of the disease, have employed means both to prevent such effusion, and to lead to its absorption.

Remember that there are two elements of the disease to deal with, the scrofulous and the inflammatory. If called to the case early, it may be necessary to apply leeches behind the ears, and keep the child in a cool room, with cold to the head; if the symptoms are chiefly those of pressure and there is great tendency to sleep or stupor, leeches are not required, but the other parts of the treatment are the same as in the first case, viz., to dry cup the nape, or apply sinapisms; to purge freely by the administration by the mouth of aloes and sulphate of potash, and by the exhibition of enemata of castor oil and turpentine. Then rub iodine ointment freely over the scalp, and give iodine internally. A grain of iodide of potassium with one-tenth of a grain of iodine every three hours, may safely be given to the youngest child.

Part xvi, p. 11.

Hydrocephaloid Disease.—Hydrocephaloid disease, occurring in the progress of infantile diarrhoea. Give (a child 18 months old) a tablespoonful of equal parts of milk and barley-water every quarter of an hour, with 16 drops of brandy every hour, and a little veal broth every two hours. Administer a draught containing ten grains of aromatic confection, half a drachm of compound tincture of bark, and six drops of sal volatile every three hours, and a grain of Dover's powder at bedtime. Gradually withdraw the stimulants when the symptoms are relieved. Hydrocephaloid symptoms may also come on in pneumonia, or after real congestion of the brain has been somewhat over-treated.

Part xvi, p. 14.

Chronic Hydrocephalus.—As a last resource you may tap with a common trochar, and inject two or three ounces of a solution of tincture of iodine (fourteen minims to two ounces), previously heated to the temperature of the body. It is not attended with the danger which at first sight might be supposed, and it will have a very perceptible effect in controlling the secretions.

Part xxiii, p. 69.

Hydrocephalus.—When once the soft union of the cranial bones yields to the expanding influence of the fluid within the brain, the progress of the effusion is mainly attributable to an atonic condition of the vessels. The gradual increase of fluid may be prevented by the application of permanent equable pressure by means of an elastic cap, closely fitting the head. In a case treated by the author, the effusion of fluid was considerably reduced, approximation and union of the previously widely separated cranial bones being induced.

Part xxxvii, p. 237.

Hydrocephalus.—In some cases great amelioration of the symptoms will follow the free use of croton oil as a counter-irritant. The liniment (croton oil, half a drachm; turpentine liniment, half an ounce) must be rubbed, about every four hours, over the entire head, until a plentiful crop of pustules make their appearance. This plan of treatment was first suggested to the author by a case in which the cephalic symptoms supervened on the cure of eczema of the scalp, with profuse discharge.

Part xl, p. 42.

HYDROPHOBIA.

Indian Hemp.—The resinous extract of Indian hemp, in the form of pill, to the extent of from 5 to 10 grains, and repeated according to effect, recommended in hydrophobia.

Part ii, p. 31.

Bite from a Mad Dog.—Vide Art. "Practical Remarks on Caustics."

Opium Smoking.—Suggested as a remedial agent in hydrophobia, tetanus, *tic douloureux*, etc.
Part v., p. 58.

Aconite in Hydrophobia.—The analogy which exists between tetanus and hydrophobia, says Mr. Page, naturally leads to the inference that, if aconite be efficacious in tetanus, it may also be employed with advantage in the latter disease; and should a case occur in my own practice, I should certainly employ this remedy in preference to any other, carrying its effects to the furthest allowable extent. In fact, from my previous knowledge of the physiological effects of this drug, I had determined to administer it in the event of hydrophobia manifesting itself in any of six children who were bitten by a dog in an undoubtedly rabid state. In five of the children the bitten parts were excised; and, happily, I have not been called upon to test the therapeutic properties of aconite in any one of them. I may here mention that the results of Dr. Garrod's important experiments on the property which animal charcoal possesses of destroying the power of vegetable poisons, whether in or out of the body, together with his suggestion that it may exert a like influence over animal poisons, induced me to recommend the application of poultices of animal charcoal to the wounded parts, which was continued until they were perfectly healed.

Part xiii., p. 60.

Hydrophobia—To Prevent.—First apply caustic, especially in solution, and then excise all that can with safety be removed. If there is no reason to suspect the dog of being rabid, it is better not to operate, since the operation itself produces much irritation, as well as alarms the patient.

Part xvi., p. 110.

Chloride of Zinc in a Deliquescent or Liquid State.—Dr. Cattell, in treating of the precautions to be observed in dissecting, says:

From my experience in caustic applications, I am not aware that I could point to one that exerts a more penetrating influence than this does. Should a case of hydrophobia fall under my care, immediately after the wound had been inflicted by the animal, the first application should be the deliquescent solution of chloride of zinc.

Part xvi., p. 300.

Tracheotomy Suggested.—According to Dr. M. Hall, in cases of hydrophobia, the patient dies from repeated excitation of reflex action, wearing out, as it were, the power of the spinal centres; and from asphyxia, induced by repeated paroxysmal closure of the larynx. Tracheotomy is, therefore, to be performed, in order to prevent asphyxia; and the patient is then to be placed on a spring bed, and surrounded by ranges of curtains of lace or net, and every current of air, every shake of the bed or the floor, in a word, every excitation, or cause of reflex action or emotion, absolutely avoided.

Part xviii., p. 98.

Use of Chloroform in Hydrophobic Mania.—Mr. Ackerley recommends that repose be procured by inhalation of chloroform, once or twice a day; and apply counter-irritation to the head and spine, and give active purgatives.

Part xviii., p. 99.

Hydrophobia.—In a case of this terrible affection, chloroform was administered with great relief to the restlessness, vomiting, and violence of the convulsions, though it had no effect in preventing the fatality of the case.

Part xxvi., p. 29.

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